

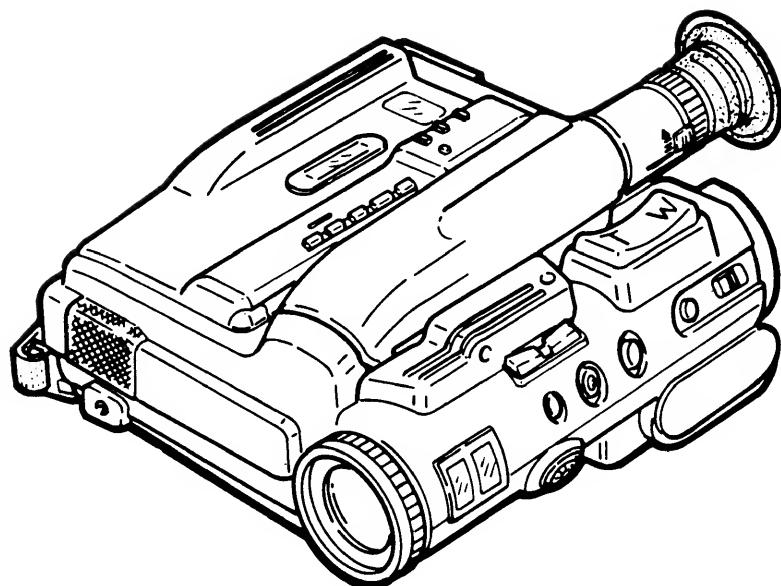
**SANYO**

**Instruction  
Manual**

**8 mm  
Camcorder**

**VM-ES88P**

**8** PAL



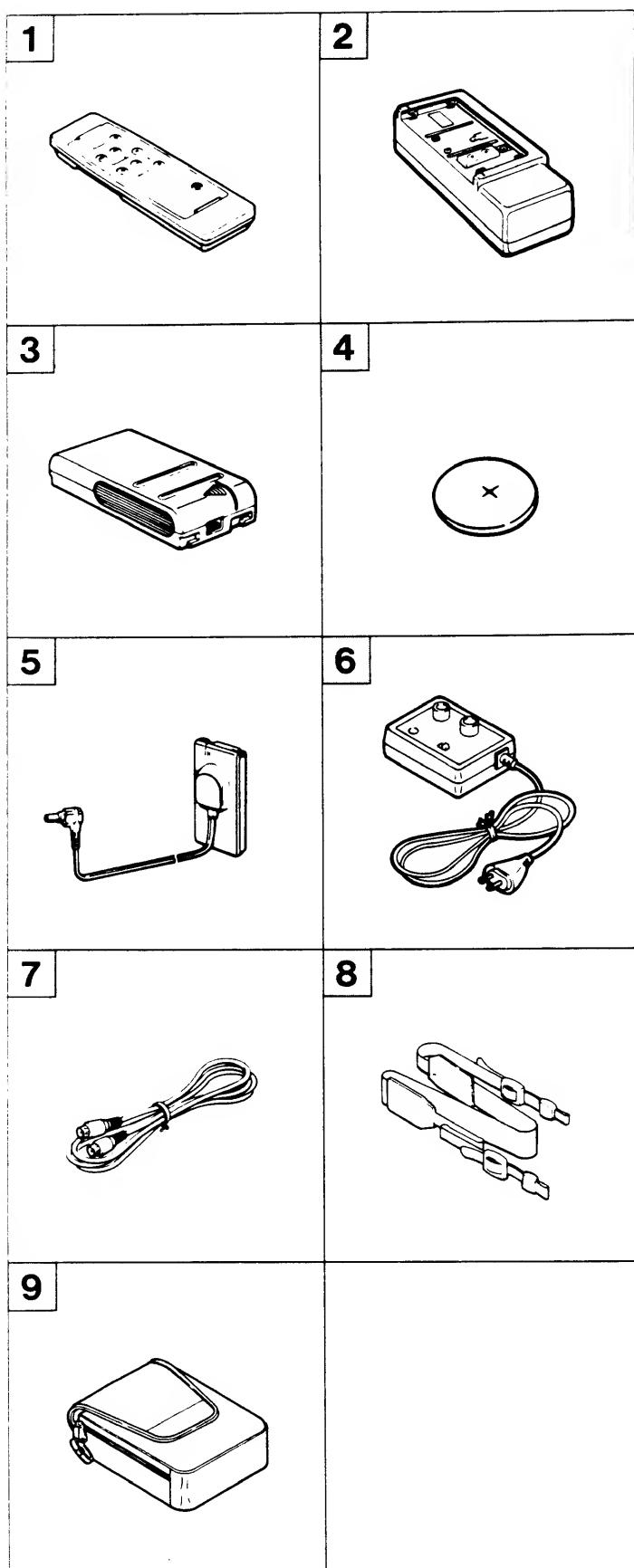
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# FEATURES

- 8-key IR remote control
- Fuzzy auto focus
- Fuzzy auto iris
- Automatic white balance
- Fade in/out recording
- High speed shutter
- Title insert (superimpose)
- Scene search
- Date/time imprint
- Macro (close-up) recording with auto focus
- Six-power zoom-in/zoom-out powered
- Electronic viewfinder for immediate playback
- Recording review for checking the last part of a recording
- Still frame/picture search
- Real time tape counter
- Maximum recording time : 180 minutes
- ½" CCD, 320,000 pixels
- Multi angle viewfinder
- Multi- voltage (100 V to 240 V)

# ACCESSORIES



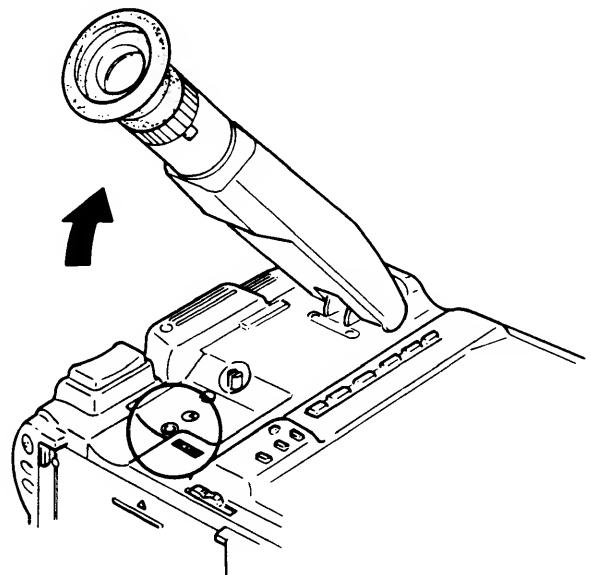
1	Remote control unit (SCR-18)	1
2	VAR-30B AC adaptor	1
3	NP-55 Battery pack	1
4	Lithium battery (CR2025)	1
5	Power connection cord	1
6	VRF-550 RF adaptor	1
7	Coaxial cable	1
8	Shoulder belt	1
9	Soft case	1

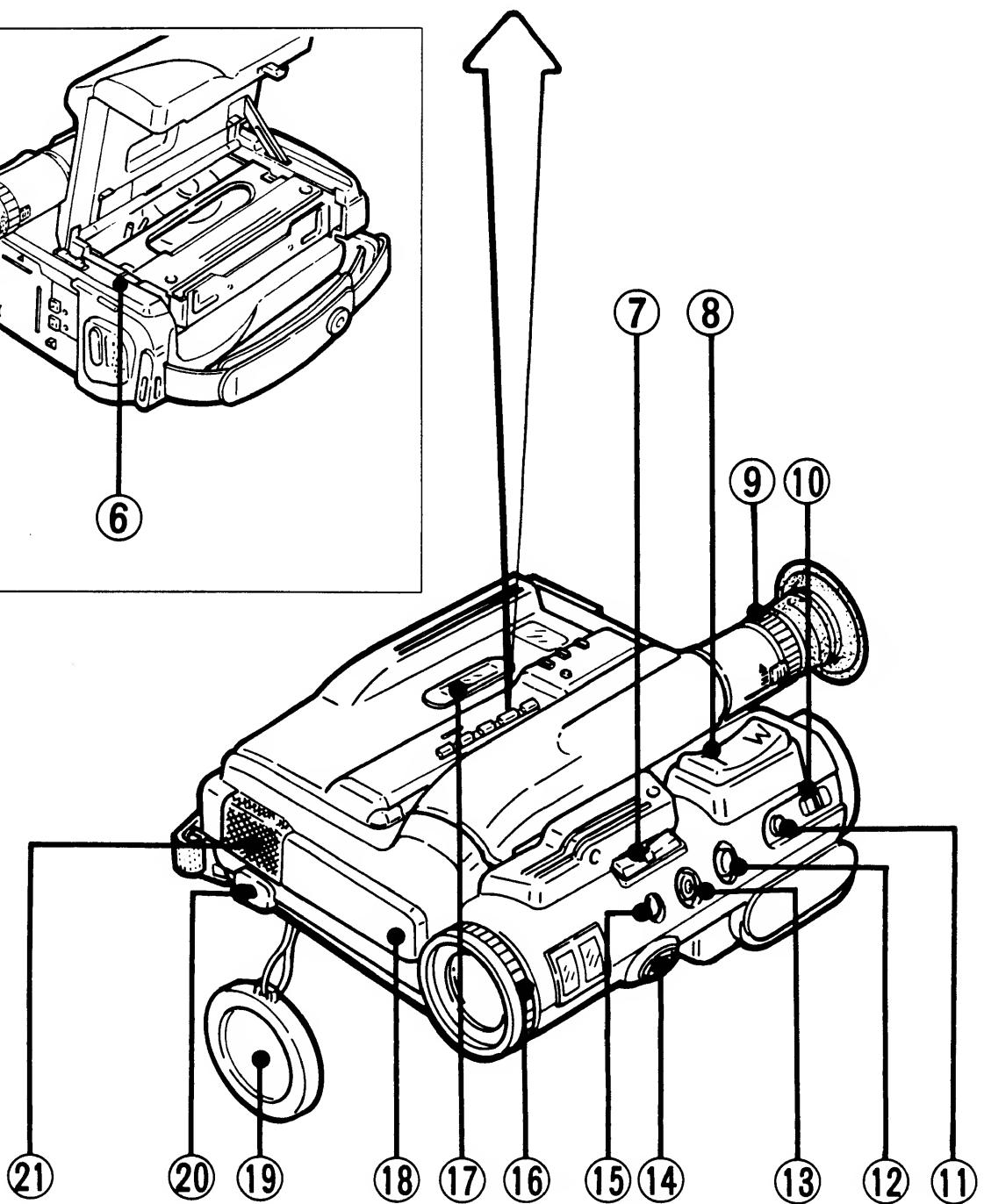
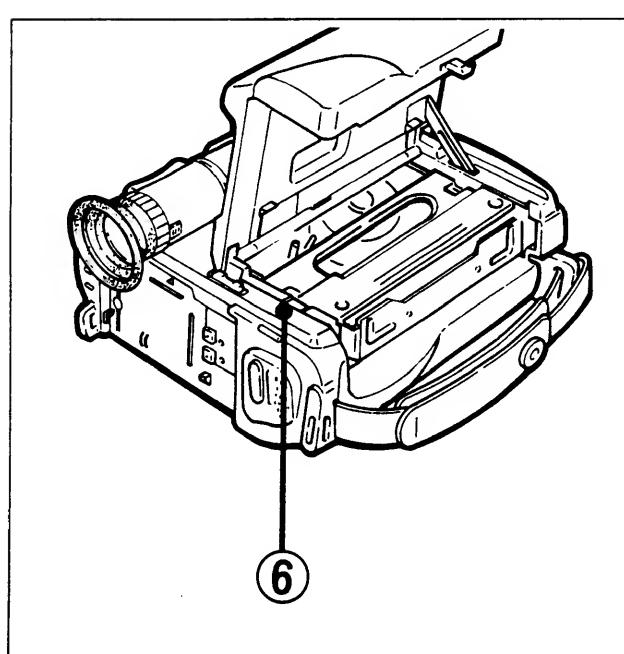
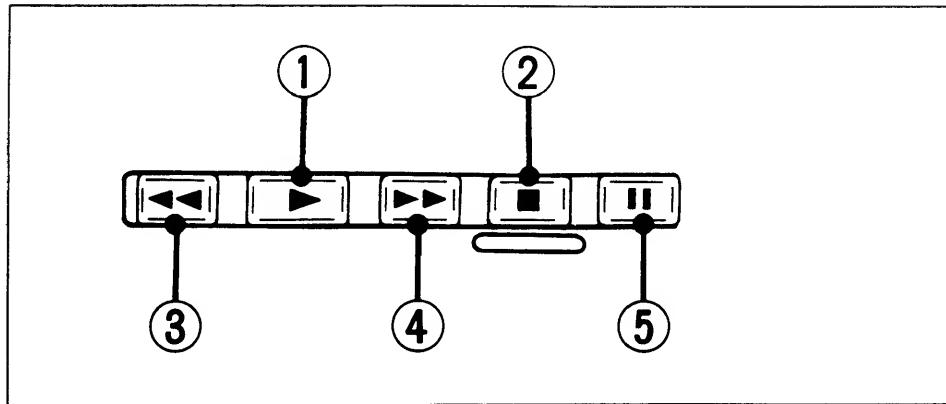
## Regarding LANC Terminal/ Symbol

The symbol "  " is for LANC (Local Application Control Bus System) terminal. LANC terminal is intended for connecting video equipment with peripheral equipment, and allows controlling of tape running and others.

### Note :

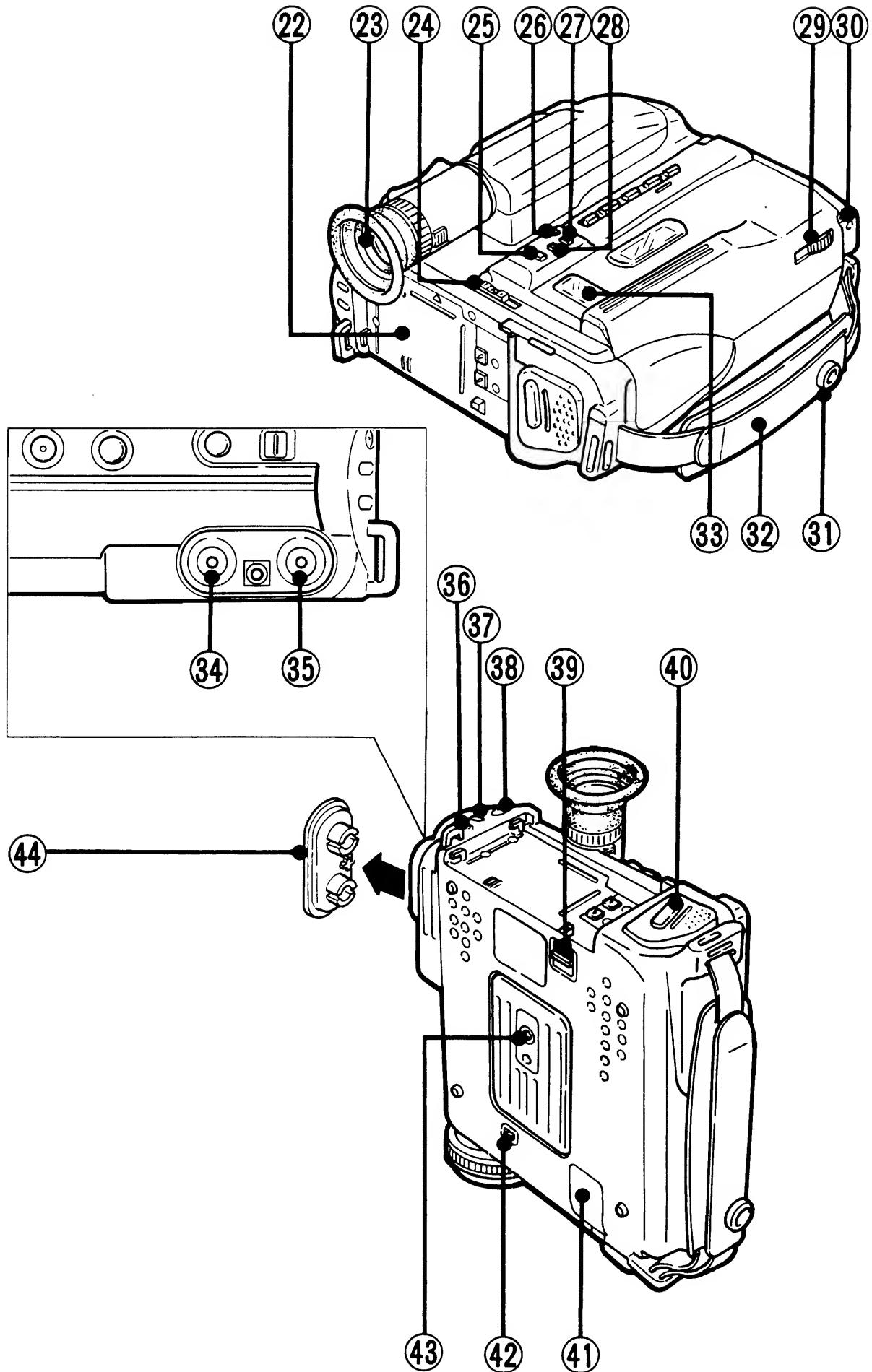
Be careful not to insert a plug of instruments that are not responsive to LANC, such as microphones or carphones, otherwise, it may cause disaster



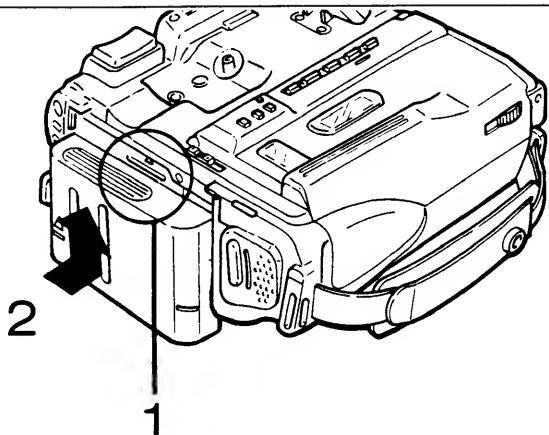
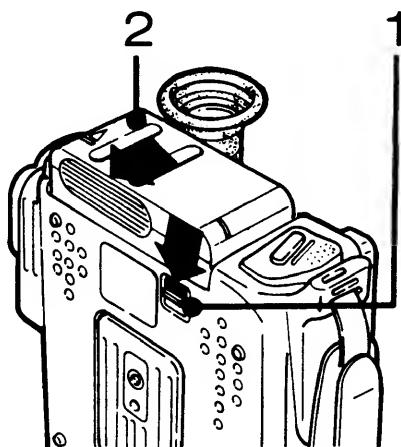
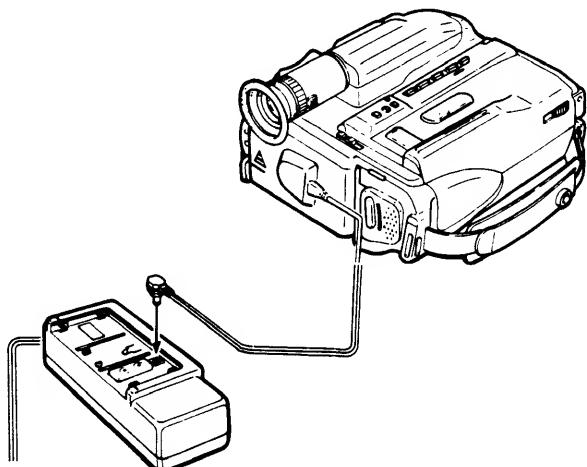


# PART NAMES

- ① PLAY button
- ② STOP button
- ③ REW button
- ④ FF button
- ⑤ STILL button
- ⑥ EJECT button
- ⑦ SCENE SEARCH button
- ⑧ Power zoom button
- ⑨ Eyesight compensation ring
- ⑩ FOCUS switch
- ⑪ FOCUS REV button
- ⑫ SHUTTER button
- ⑬ FADE button
- ⑭ IRIS control knob
- ⑮ CLOSE UP button
- ⑯ Focus ring
- ⑰ Cassette cover
- ⑱ Infrared remote sensor  
(REC/PAUSE lamp)
- ⑲ Lens cap
- ⑳ EARPHONE jack
- ㉑ Microphone



- ②2 Battery holder
- ②3 Viewfinder
- ②4 POWER switch
- ②5 MEMORY button
- ②6 ADJ button
- ②7 DATE button
- ②8 RESET button
- ②9 Cassette cover switch
- ③0 EXT.MIC jack
- ③1 Lens cap snap
- ③2 Grip belt
- ③3 Digital indicator
- ③4 Video out terminal
- ③5 Audio out terminal
- ③6 TITLE COLOR button
- ③7 TITLE MEMO button
- ③8 TITLE ON/OFF button
- ③9 Battery eject lever
- ④0 REC START/STOP button
- ④1 Lithium battery cover
- ④2 REC MODE/EDIT switch
- ④3 Tripod screw mount
- ④4 AV jack cover

**1****2****3**

## POWER SOURCE

### Outdoor Use :

For outdoor recording, use supplied battery pack NP-55.

**1**

### Attaching the Battery Pack

1. Align the line on the this unit and the side of battery pack.
2. Gently press the battery pack toward the unit, then slide it to the up, until it "clicks" into place.

**2**

### Removing the Battery Pack

1. Press and hold down the battery eject lever.
2. Slide the battery pack to the left.

### Indoor Use :

For indoor recording, use supplied AC adaptor VAR-30B.

**3**

- a) Attach (or remove) the power connection cord following the steps 1 and 2 above "Attaching the Battery Pack" (or "Removing the battery pack").
- b) Connect the power connection cord to the AC adaptor plug the adaptor to an AC outlet. The green power lamp will light.
- c) When finished recording or playback, disconnect the AC adaptor's plug from the AC outlet.

The AC adaptor can be used in countries with line voltages between 100 V AC and 240 V AC.

### Notes :

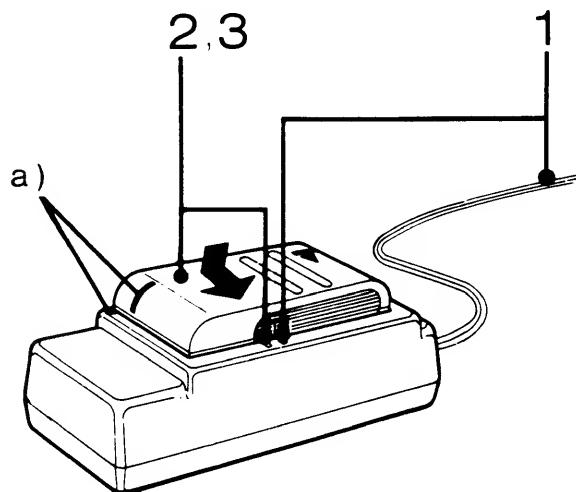
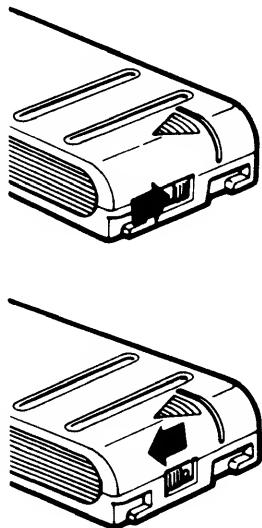
- The battery pack supplied with this unit has not been charged. Charge it before initial use.
- Do not use VAR-30B AC adaptor to supply power for other than VM-ES88P 8mm camcorder.
- When removing the battery pack or power connection cord, power should be switched OFF.

### IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:



- As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.
- The wire which is coloured blue must be connected to the terminal which is marked with the letter **N** or coloured blue or black.
- The wire which is coloured brown must be connected to the terminal which is marked with the letter **L** or coloured brown or red.
- On no account connect either of these wires to the terminal marked **E** or **+**.

**1****2**

## CHARGING

Use the VAR-30B AC adaptor to charge the battery pack.

**1**

1. Plug the AC adaptor into an AC outlet.  
The green power lamp will light.
2. Attach the battery pack.
  - a) Align the line marks.
  - b) Gently press down on the battery pack. Slide it into place as shown by the arrow.

The charge lamp will light and charging will begin. When the battery pack has been fully charged, the charge lamp will change to yellow. The NP-55 battery pack can be charged in about one hour. (NP-77 battery pack: about 120 minutes, NP-77H battery pack: about 140 minutes)
3. Slide out the battery pack in the opposite direction.
4. Disconnect the AC adaptor's plug from the AC outlet.

**2**

### After charging :

Slide the cover on the battery pack as shown to cover the red circle.

### When the battery pack is exhausted :

Slide the cover on the battery pack as shown to reveal the red circle.

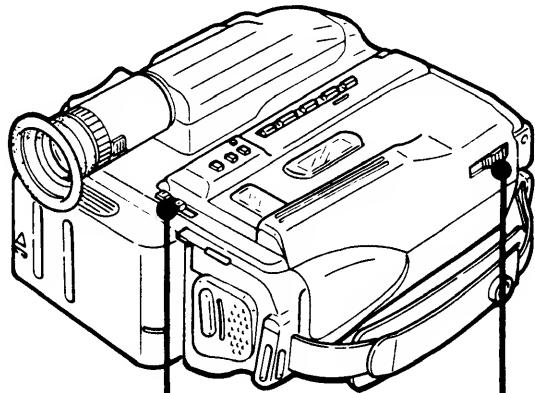
### Duration of fully charged battery pack (for camera recording)

NP-55 : about 50 minutes  
NP-77 : about 100 minutes  
NP-77H : about 110 minutes

### Notes :

- At normal temperatures, a fully charged NP-55 battery pack will provide enough power to record for about 50 minutes. It will provide much less recording time in cold locations.
- Do not use VAR-30B AC adaptor for other purposes than charging NP-55, NP-77 or NP-77H battery packs.
- Do not continue charging a fully charged battery pack, because doing so will adversely affect its performance.
- Although charging is possible within a temperature range of 5°C ~ 35°C, for best results, a temperature range of 10°C ~ 30°C is suggested.
- Be sure to detach battery pack from the unit when the unit is not to be used for a long time. Because with battery pack held set in the unit, a very small amount of current will flow in the unit even if POWER SWITCH is turned off.

1



## 8mm CASSETTE TAPE

Only 8mm video cassette can be used in this unit.

### Loading Cassette

1

- 1 Set the POWER switch to the CAMERA or PLAYER position.  
Switch while pressing the button in the middle of power switch.
- 2 Slide the cassette cover switch and lift up the cassette cover.
- 3 Press the EJECT button.  
The cassette holder will open.
- 4 Insert a cassette. Gently press the "PUSH" indicator on the cassette holder.
- 5 Close the cassette cover.

### Ejecting Cassette

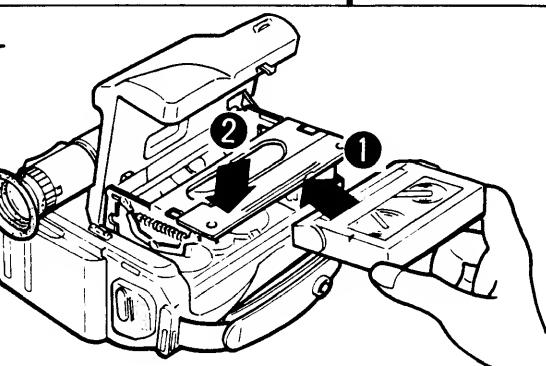
Eject cassette by following the same steps as "Loading Cassette".

- If cassette cover is attempted to be closed by mistake while cassette tape is being ejected, mechanical parts may suddenly stop running. In the above event, "CASSETTE" indication will appear in the viewfinder, and "CASSETTE" indication in digital indicator will flash quickly. To restore normal condition, lift up cassette cover completely and depress EJECT button.
- Before closing cassette cover, make sure if cassette tape is correctly set in the unit.

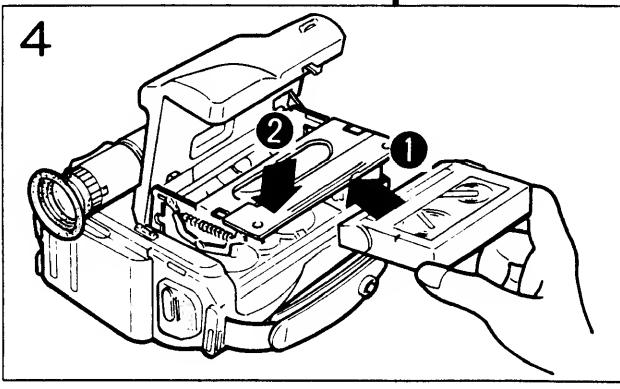
### Notes :

- Never carry this unit by grasping the cassette holder, cassette cover, or the viewfinder.
- Do not cover the holes on the bottom of the cassette. These holes are used to detect the type and length of tape and whether or not recording is possible.
- Store each video tape cassette in its case, standing upright (vertical). This will prevent the entrance of dust and uneven tape winding.
- The tape recorded by Hi8 system can not be played back by this unit.

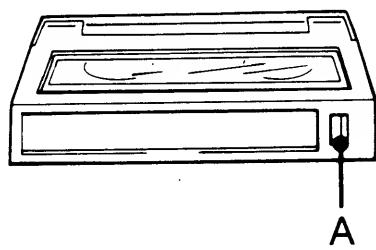
3



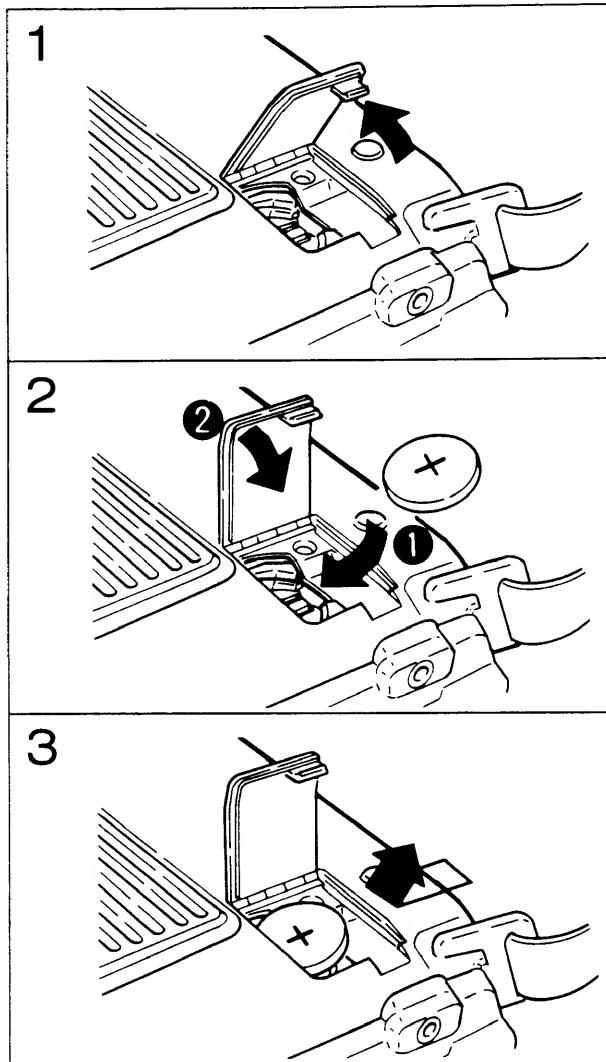
4



1



2



1

#### A : ERASURE-PREVENTION switch

To prevent accidental erasure of recorded material, set the switch on the spine of the cassette to the red position. Recording then cannot be made on that cassette. To record on it later, return the switch to the original position.

#### Video tape recording/playback time (unit : min)

Size	Mode SP	Mode LP
P5-15	15	30
P5-30	30	60
P5-60	60	120
P5-90	90	180

#### LITHIUM BATTERY

2

The date/time imprint function of this unit requires a lithium battery to prevent the loss of the date/time memory when the power is switched off.

The lithium battery has a life of approximately 1 year when used normally.

#### Installing/Replacing the Lithium Battery

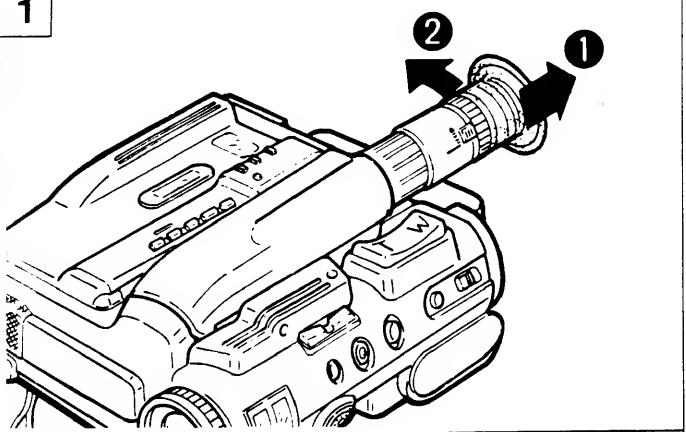
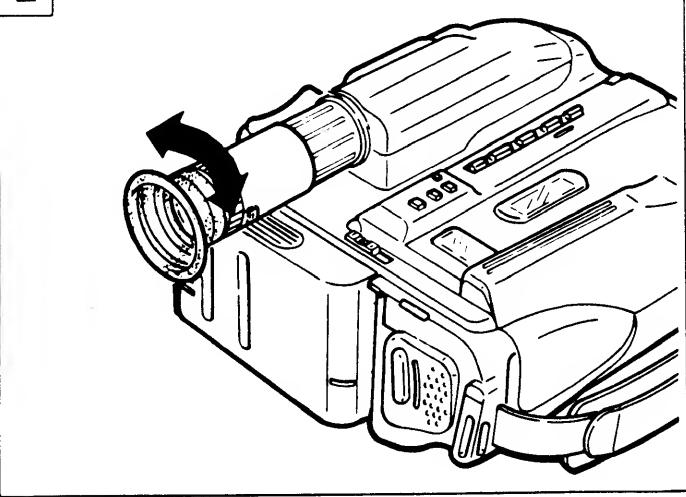
(Lithium Battery : CR2025 [3V] )

1. Open the lithium battery cover.
2. Lithium battery insertion.
  - a) Wipe the battery clean with a dry cloth to prevent faulty contact.
  - b) Insert the battery properly with the + side up.
  - c) Close the lithium battery cover.
3. To remove the lithium battery, press it down and then slide it up out of the housing.

● After replacing the battery, reset the DATE/TIME.  
(See SETTING THE DATE/TIME.)

#### Notes :

- WHEN REPLACING THE BATTERY USE ONLY THE SAME TYPE. Use of another lithium battery may present a risk of fire or explosion.
- If swallowed promptly see doctor.
- WARNING : The lithium battery may explode resulting in a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.
- Dispose of used lithium battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

**1****2**

## VIEWFINDER

**1**

Pull the eyepiece of viewfinder in the direction of arrow ① and turn it in the direction of arrow ②, then fix it. Return the eyepiece to its original position when finished.

## EYESIGHT COMPENSATION

**2**

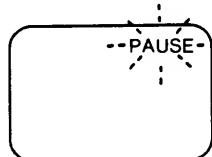
- Set the POWER switch to the CAMERA position.
- Look through the viewfinder and observe the indications.
- Move the adjustment ring (see arrow) left or right to obtain the clearest possible image of the indications.

**Note :**

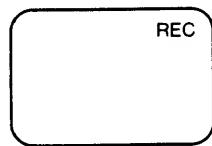
- Eyesight compensation must be readjusted whenever the camcorder is operated by someone with different eyesight from the previous operator.

## INSIDE THE VIEWFINDER

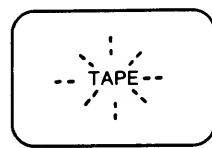
1



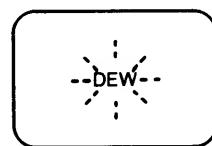
2



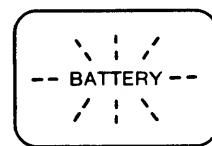
3



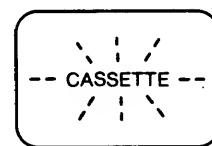
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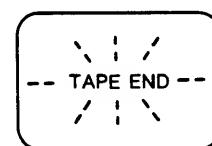
5



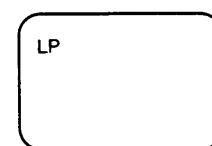
6



7



8



1

This indication appears during the recording pause mode.

2

This indication appears during the recording mode.

3

This indication appears about 5 minutes before the tape reaches its end.

4

This indication will appear and flash when dew has condensed inside the unit.

5

This indication will appear and flash when the battery becomes weak.

6

This indication will appear and flash when the cassette has been set for erase prevention or no cassette has been loaded into the camcorder.

7

This indication will appear and flash when the tape has been wound to its end.

8

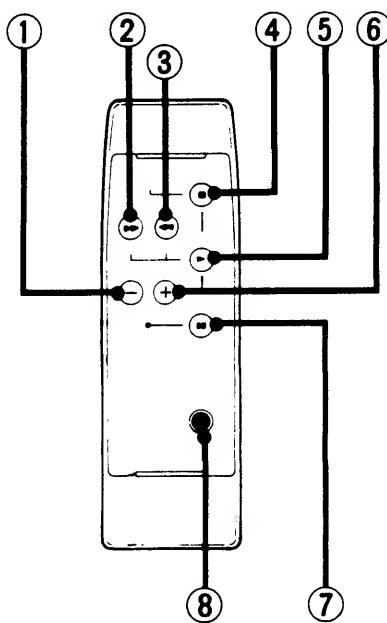
This indication will appear when the REC MODE/EDIT switch set to the LP position.

### Note :

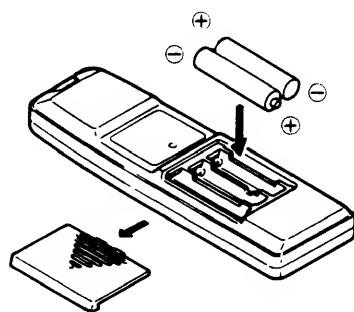
- In STOP, FF, REW modes, the indication in viewfinder will not appear.

# REMOTE CONTROL

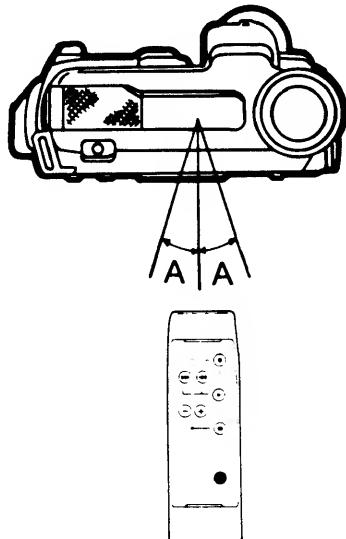
1



2



3



## PART NAMES

1

- ① SCENE SEARCH ⊖ button
- ② FF button
- ③ REW button
- ④ STOP button
- ⑤ PLAY button
- ⑥ SCENE SEARCH ⊕ button
- ⑦ STILL button
- ⑧ REC START/STOP button

## INSERT THE BATTERIES

2

The remote control unit is powered by two AAA size batteries.

1. Remove the battery compartment lid.
2. Place the two batteries in the battery compartment while observing correct polarity as indicated inside the compartment.
3. Replace the lid.

## OPERATION

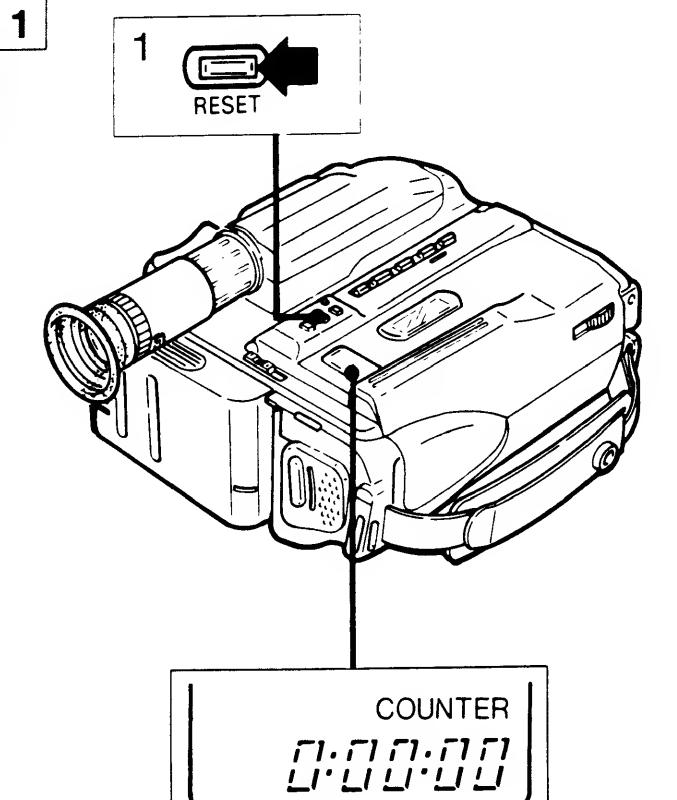
3

1. Set POWER switch for CAMERA or PLAYER, depending on the function you want to use with remote control.
2. Insert a cassette.
3. Aim the remote control transmission aperture at the sensor of the camcorder and press the desired buttons to operate.  
A : Approximately 25°

### Notes :

- The infrared rays used for operation travel in a straight line. If there is an obstacle between the remote control unit and camcorder, operation is not possible.
- Remove the batteries from the battery compartment when the unit is not to be used for a long time.
- The remote control range by infrared remote sensor is within about 5 meters and, its control angle is 25 degrees as shown in the left figure.
- When the remote control is used outdoors, the controllable range becomes shorter.

# REAL TIME TAPE COUNTER



The real time tape counter indicates elapsed tape running time in hours, minutes and seconds in SP mode based. Reset the counter to 0 : 00 : 00 at the beginning of recording or playback to find out how much of the tape remains or to search a recorded scene.

## Note :

- In the explanatory illustration, digital indicator is shown.

## RESET

1

1. Press the RESET button before starting recording. The tape counter will reset to "0:00:00" in the viewfinder. The remaining tape length can be found out by subtracting the current counter reading from the nominal recording time of the tape.

## COUNTER MEMORY FUNCTION

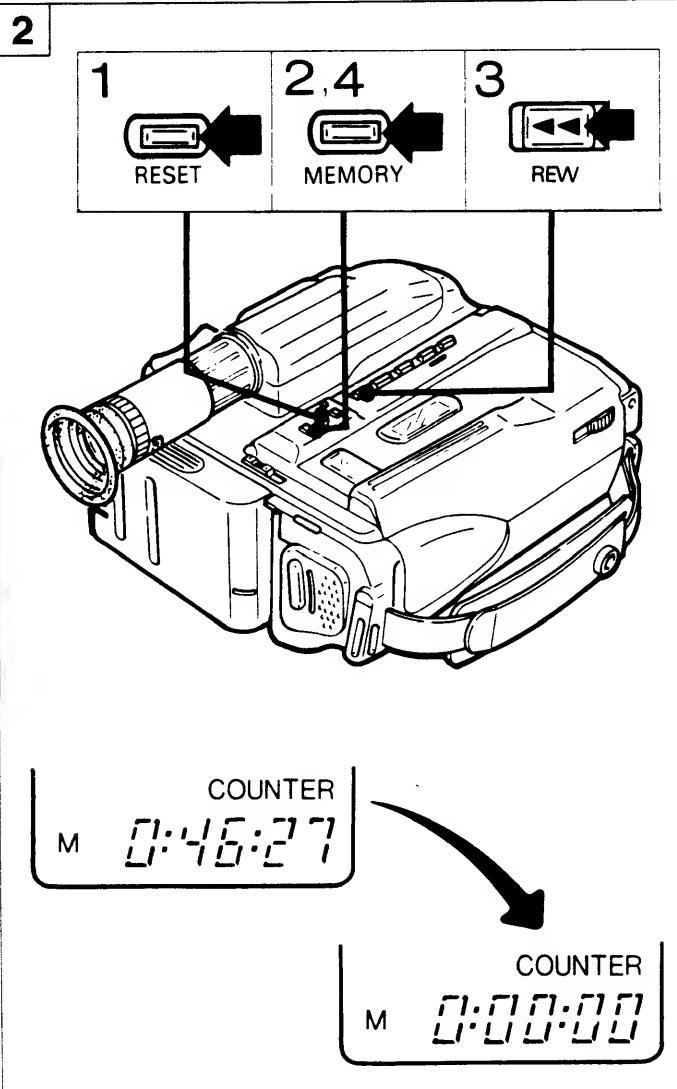
2

Using this function you can automatically rewind the tape to the exact position where you have reset the timer.

1. Reset the counter when you are recording or playing back a scene you want to see later.
2. Press the MEMORY button. The counter memorizes the tape position you have reset. The letter "M" will appear in the viewfinder. To cancel the memory mode, press the MEMORY button again.
3. Press the REW button after you are finished recording (or playback). The tape will rewind and automatically stop in the vicinity of the "0 : 00 : 00" counter reading. If the counter shows a minus value, press the FF button.

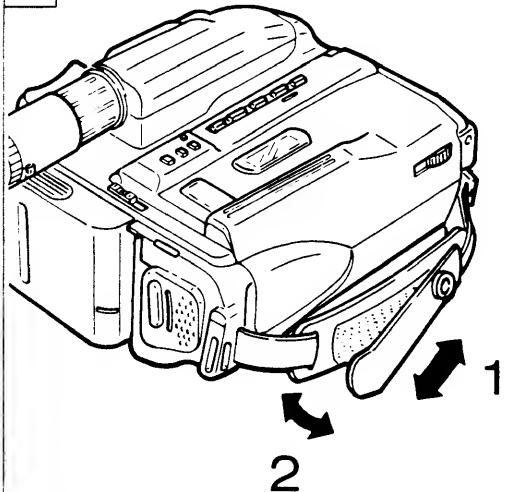
## Notes :

- When LP mode, the counter will indicate every two (2) seconds.
- There may be a small discrepancy between the counter reading and the actual tape running time.
- The counter will indicate a minus reading when the tape is rewound beyond 0 : 00 : 00 reading.

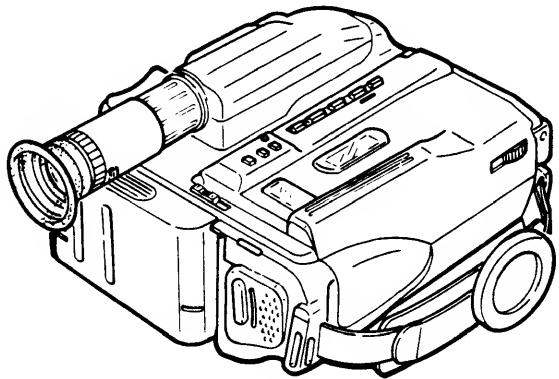


# HOLDING THE CAMERA

1



2



## GRIP BELT

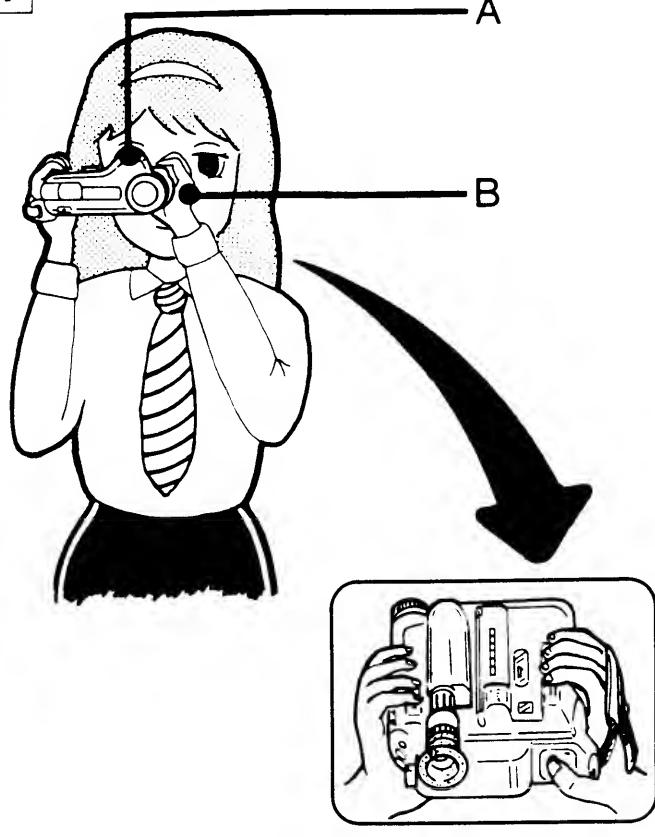
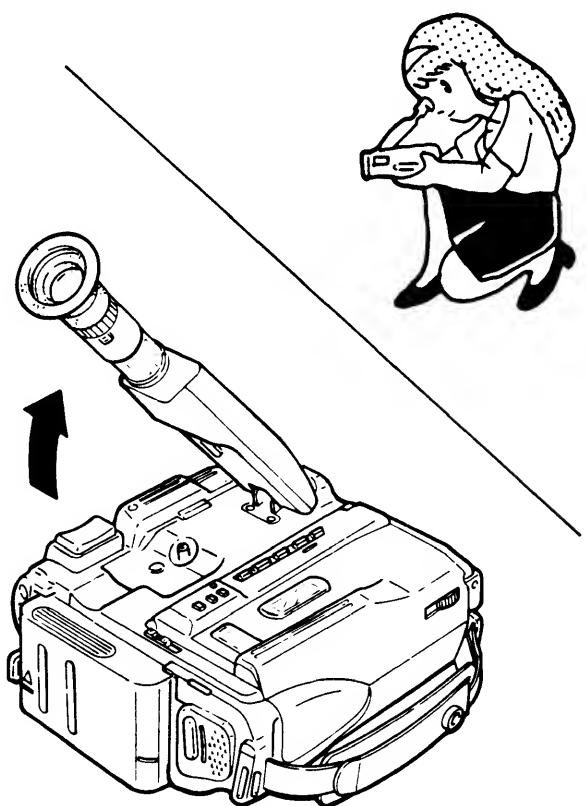
1

1. Adjust the length of grip belt.
2. Secure the belt.

## LENS CAP

2

Attach the lens cap to the lens cap snap located on the grip belt.

**1****2****HOLDING****1**

A : Hold horizontally

B : Let your left hand free so that you can handle operation buttons such as zoom button by left hand.

**LOW ANGLE****2**

When recording at a low angle, raise the viewfinder upright.

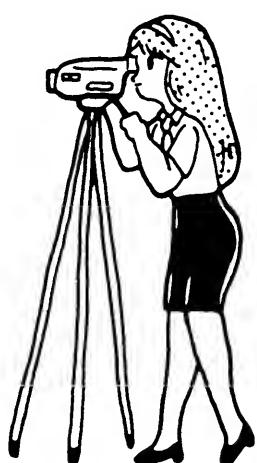
- When using NP-77 or NP-77H battery pack, raise the viewfinder slightly up.

**TRIPOD****3**

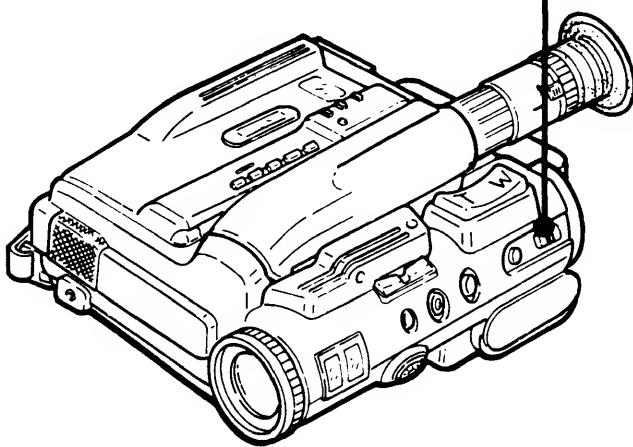
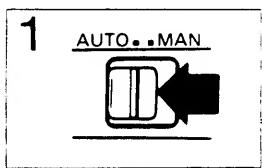
A : Stopper hole

B : Tripod mounting hole

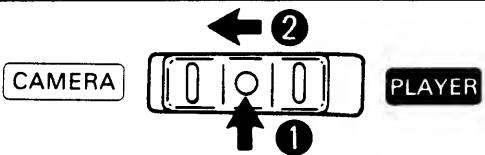
Align the tripod mounting hole and the stopper hole of this unit with the tripod's mounting screw and stopper. Tighten the mounting screw securely.

**3**

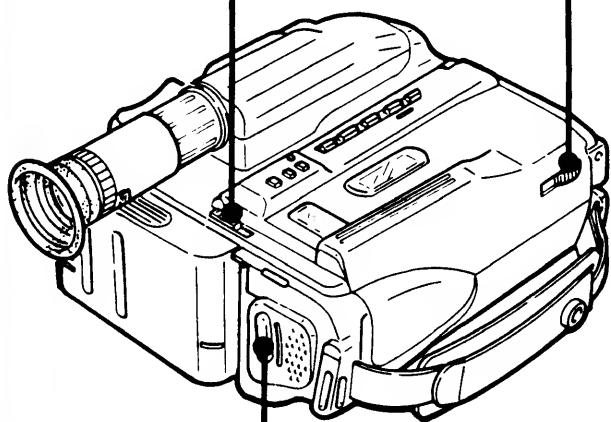
1



2



3



4



1

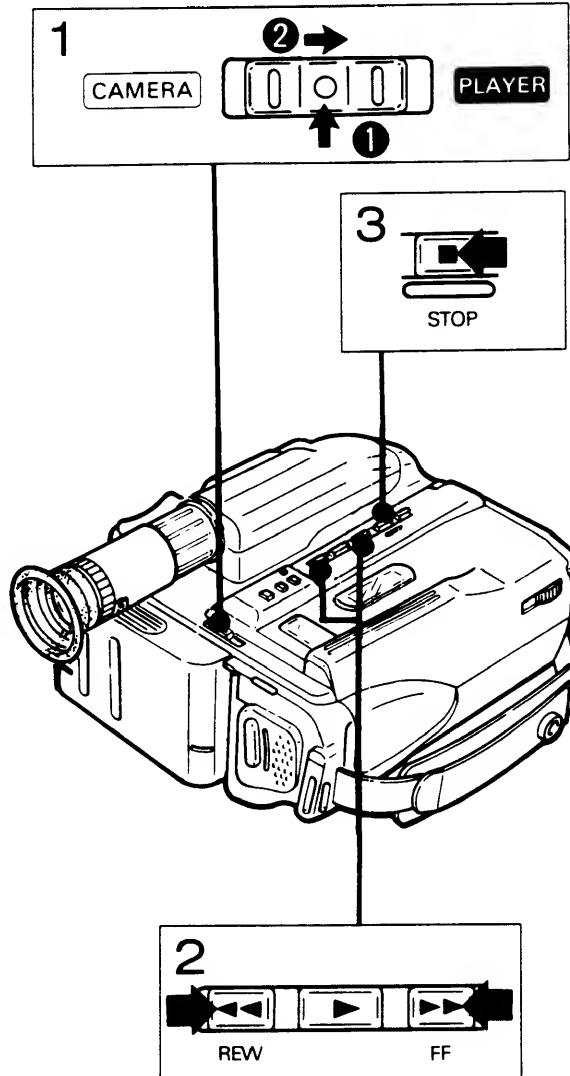
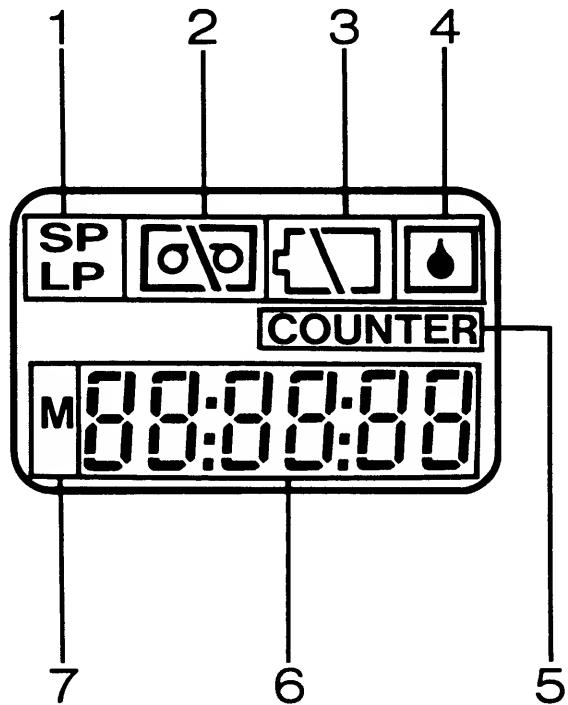
1. Set the FOCUS switch to the AUTO position. Focus is automatically adjusted.
2. Set the REC MODE/EDIT switch to the SP or LP position.
3. By pressing the button at the center of POWER SWITCH, set it for CAMERA. Then VTR system will not work even if buttons for VTR system are pressed by mistake.
4. Insert a cassette. (See page 9) The camcorder enters the recording pause mode.
5. a) Press the REC START/STOP button once. The REC/PAUSE lamp stops blinking, and recording begins.
- b) Press the REC START/STOP button a second time. The REC PAUSE mode begins, and the REC/PAUSE lamp blinks.
- c) Repeat steps a) and b) to continue recording.
- d) After recording, eject the cassette and set the POWER switch to the "OFF" position.

#### Energy-saving function of battery pack

- If recording pause mode lasts for more than five minutes, power will be shut off automatically. To start camera recording again, press REC START/STOP button. (Recording pause mode will be set.)
- With stop mode lasting for more than five minutes, power will be shut off automatically. So to turn the power on again, set the POWER SWITCH to OFF and then to PLAYER.

#### Notes :

- Vertical stripes may appear if recording is attempted under candle light or in other conditions where the light is dim. This is not an indication of a malfunction.
- When fluorescent lamps or mercury-vapor lamps are used for lighting, the recorded images will flicker.
- If recording pause mode lasts for more than five minutes while AC adapter in use, recording stop mode will be set automatically. To start camera recording again, press REC START/STOP button. Then recording will start soon.

**1****2****FF/REWIND****1**

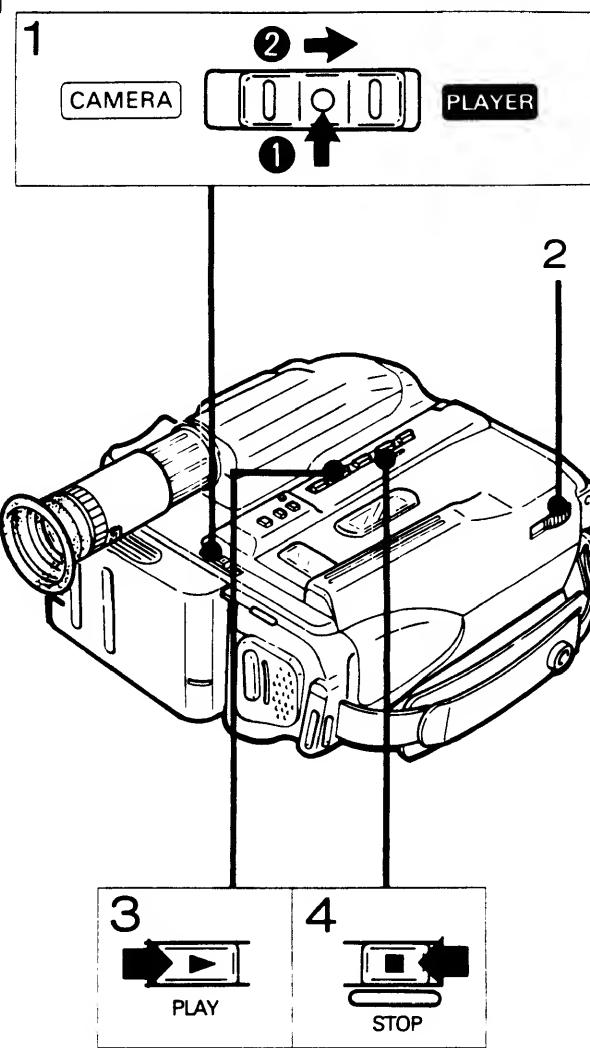
1. By pressing the button at the center of POWER SWITCH, set it for PLAYER. Then operation button of video system will work, and the power for camera system will be shut off so as to save energy.
2. Press the FF button or REW button.
3. To stop the tape, press the STOP button.

**DIGITAL INDICATOR****2**

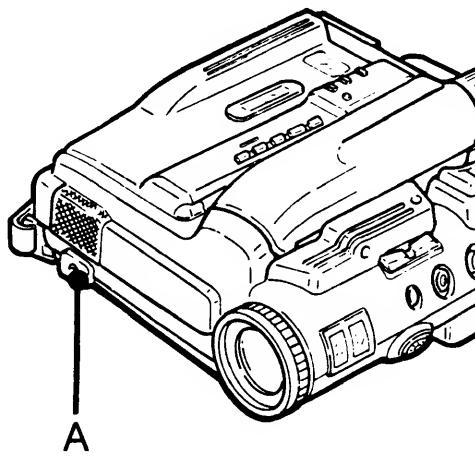
1. Recording mode indicator : It indicates recording mode.
2. Tape indicator : It will flash under the following conditions :
  - a) The tape reaches its end about 5 minutes before.
  - b) The tape has been wound to its end.
  - c) The cassette has been set for erase prevention.
  - While tape is not set, the indicator will be lighted.
3. Battery indicator : It will flash when battery is exhausted.
4. Dew indicator : It will flash when dew generates in the unit.
5. Counter indicator : It will be displayed while tape counter is displayed.
6. Counter/Date/Time indicator : It indicates tape counter, date, and time
7. Memory indicator : It will be displayed while counter memory function in use.

# PLAYBACK

1



2



The tape recorded by this camcorder can be viewed on a TV screen, or in the viewfinder of this unit.

Connect the unit to TV according to the steps shown in "CONNECTION".

1

1. By pressing the button in the center of POWER SWITCH, set it for PLAYER.
2. Insert a recorded cassette. (see page 9)
3. Press the PLAY button.  
Playback will begin.
4. To stop the tape, press the STOP button.

## EARPHONE

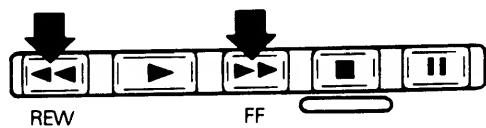
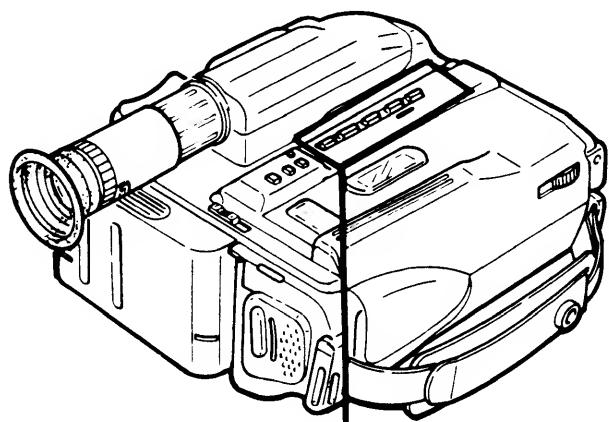
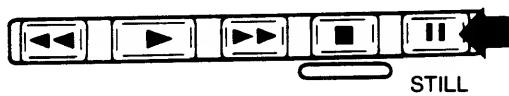
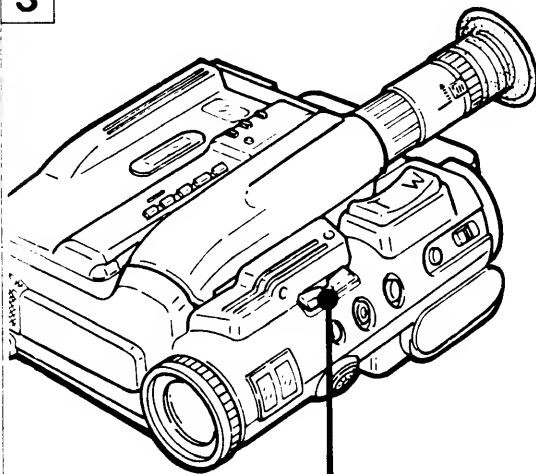
2

A : EARPHONE jack

To listen to the sound while playing back in the viewfinder, connect a commercially available earphone to the EARPHONE jack.

### Notes :

- The reproduced scene of the tape recorded on video tape in LP mode will be slightly inferior to SP mode.
- If the tape recorded by this unit from the beginning is played back by other 8 mm video recorder, the head part of the tape may be omitted due to mechanical difference.

**1****2****3**

## SPECIAL PLAYBACK MODES

### Picture search

**1**

Press and hold the FF or the REW button during playback or still playback. The tape will move quickly forward or reverse respectively until the FF or REW button is released.

- Note that horizontal lines appear in the picture during picture search.

### Still playback

**2**

Press the STILL button during playback to view a still picture. To return to normal playback, press the STILL button or the PLAY button.

#### Notes :

- If the still mode continues for about 5 minutes, the unit will automatically switch to the stop mode.
- On occasion the image may sway vertically.
- Some noise may appear during still mode.

### Scene search

**3**

Use this feature to locate a particular scene at normal playback speed. No sound is reproduced.

Press and hold the SCENE SEARCH button ("+" or "-") during recording pause or still playback.

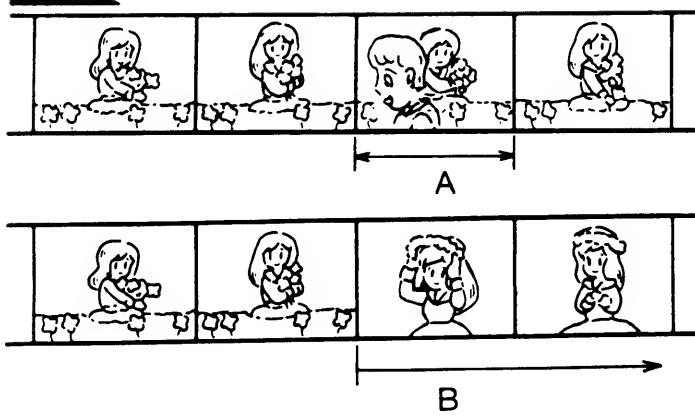
Press "+" button ... Forward scene search starts at normal speed.

Press "-" button ... Reverse scene search starts at normal speed

Release the button when the desired scene appears. The camcorder returns to the previous mode (recording pause or still playback).

- Some noise may appear during scene search mode.

# SMOOTH TRANSITION



Using the scene search feature, starting a new recording from the exact beginning of an undesired scene is very easy. For example, you have stopped recording because somebody just passed in front of your camera. You can now locate the unwanted scene in the viewfinder with scene search while remaining in recording pause mode, and then start next recording from there.

A : Undesired scene

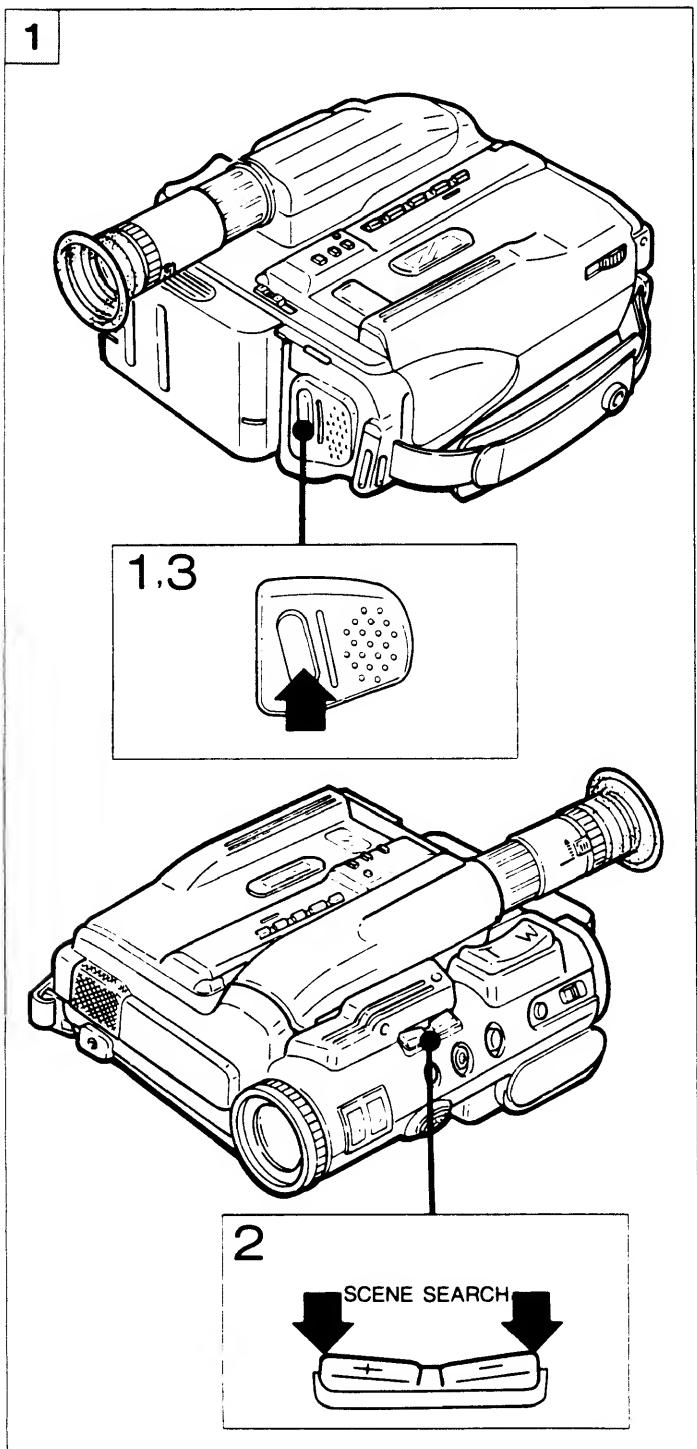
B : New recording

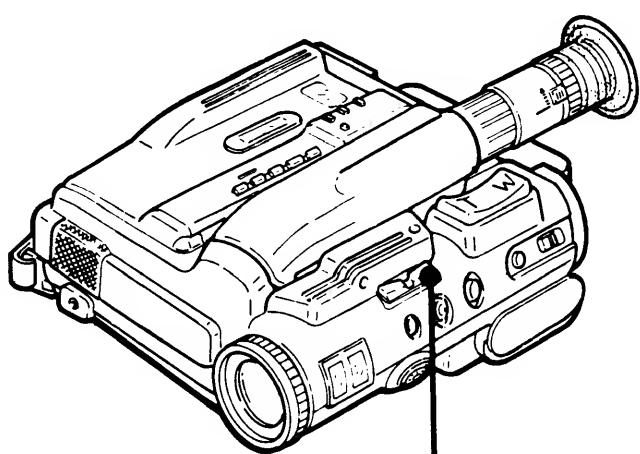
## 1

1. Press the REC START/STOP button to enter the recording pause mode.
2. Press and hold a SCENE SEARCH button ("+" or "-"), until the beginning of the unwanted scene is located in the viewfinder.
3. Start recording by pressing the REC START/STOP button.

### Note :

- During SCENE SEARCH in the chain-recording, noise may appear in the viewfinder irrespective of the playback direction, NORMAL or REVERSE.



**1****1**

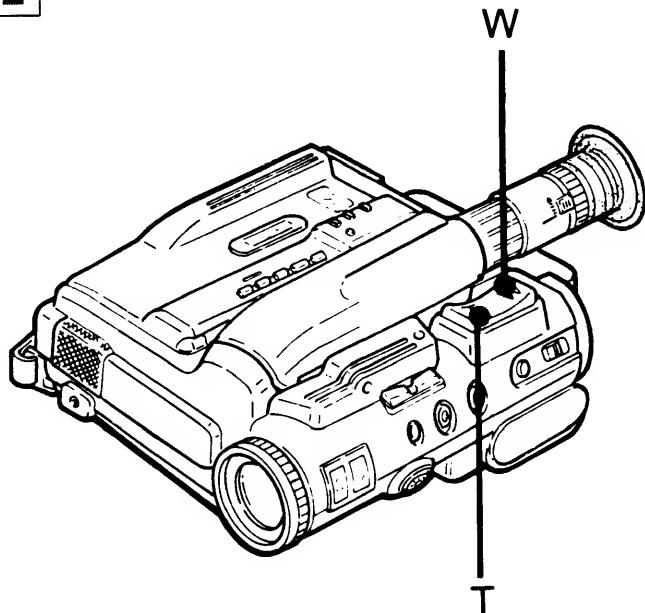
Press the SCENE SEARCH (-) button during the recording pause mode immediately after recording. The last 2 seconds of the recording will be played back in the viewfinder. The unit will re-enter the recording pause mode after the recording review.

**Note :**

- Do not keep pressing SCENE SEARCH (-) button, or SCENE SEARCH picture will be given.

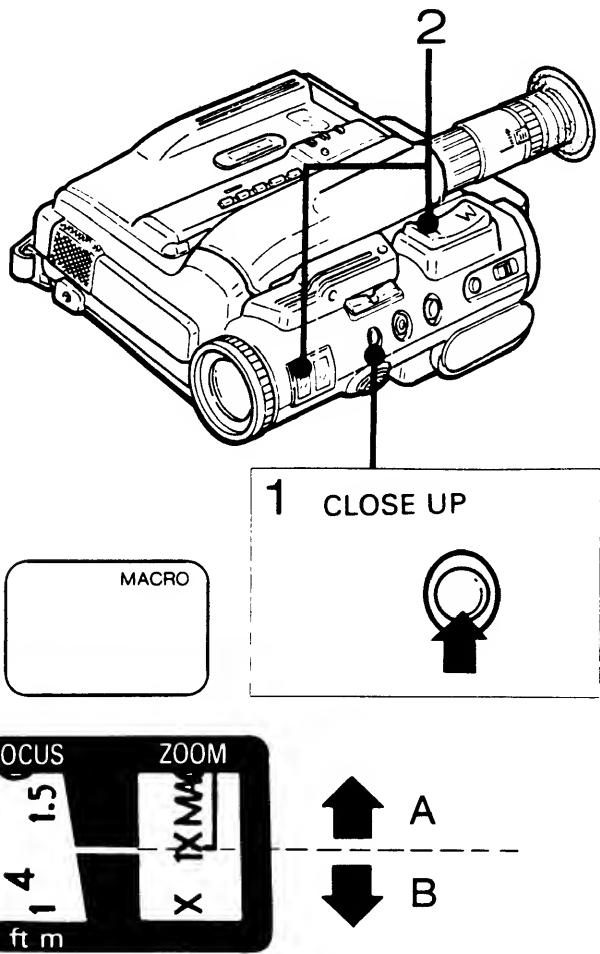
**ZOOM****2**

Electric zooming allows up to 6 times zooming. Press "W" side of the switch for wide angle recording, and press "T" side for telephoto recording. Zooming speed is proportional to the pressure applied to the switch.

**2**

## MACRO (CLOSE-UP) FOCUSING

1



2



Under ordinary conditions, the camcorder cannot focus if the subject is within about 1.2 m of the unit. Macro focusing can be used to focus on closer subjects (from 1.2 m to about 15 mm from the camcorder).

1

1. Approach the object, press CLOSE UP button and the camera automatically focuses on the object.
  - MACRO indication will appear in the viewfinder during macro recording.
  - While CLOSE UP button is kept pressed, auto focusing in macro range will be continued.
2. To return to normal recording, press the POWER ZOOM button (T).
  - Recording range will be moved from macro to normal.  
A : Macro range.  
B : Normal recording range.

2

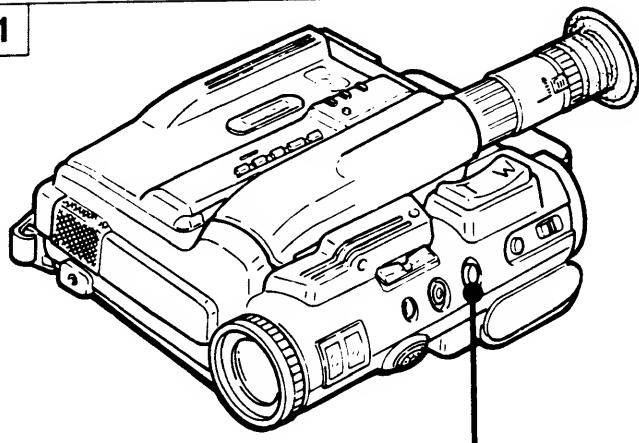
Inadvertent camcorder movement will affect the quality of macro recordings. The use of a tripod or stand to hold the camcorder fixed in place is recommended.

**Note :**

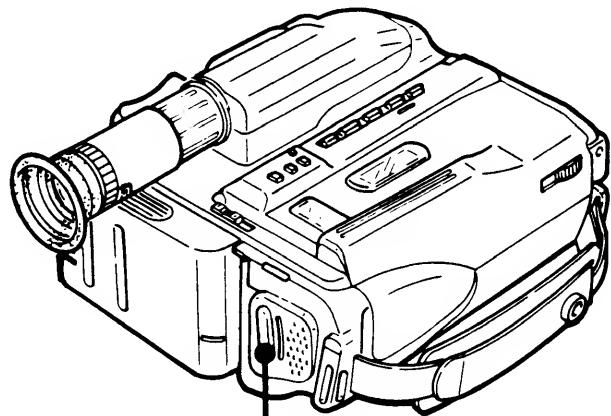
- To zoom or reduce the size of the object in the viewfinder during macro recording, the camera and the object must be moved farther apart, and press the CLOSE UP button again.

## HIGH SPEED SHUTTER

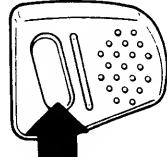
1



1 SHUTTER



2



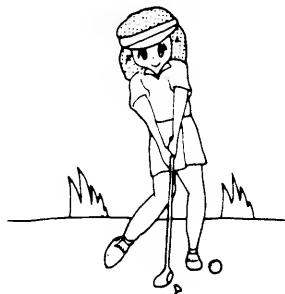
250

2

A



B



1

1. Press the SHUTTER button, and select a desired shutter speed.

High Speed Shutter indication will appear in the viewfinder and change each time the button is pressed.  
120 → 250 → 1000 → 2000 → 4000 → No indication.  
(1/120 → 1/250 → 1/1000 → 1/2000 → 1/4000) (Normal speed, 1/50)

2. Start recording

Notes :

- Shutter speed can be changed during recording.
- To return to normal shutter speed (1/50 sec.), press the SHUTTER button until no indication appears in the viewfinder.

2

Still playback:

A : Without high speed shutter.

- The picture is blurred.

B : With high speed shutter.

- The picture is clear without blurs.

• There may be picture noise during still playback.

Notes :

- If the high speed shutter is used for shooting in locations with low illumination such as indoors, the screen will be dimmer than usual. Shoot in a bright location such as outdoors on a clear day.
- Use the high speed shutter effectively. During normal playback, movement in pictures shot with the high speed shutter will not appear smooth.

# FADE EFFECT

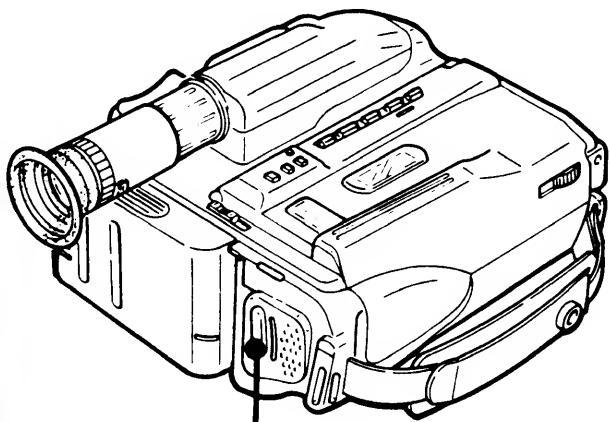
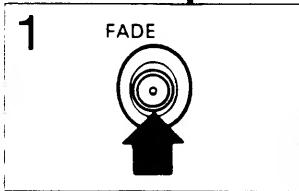
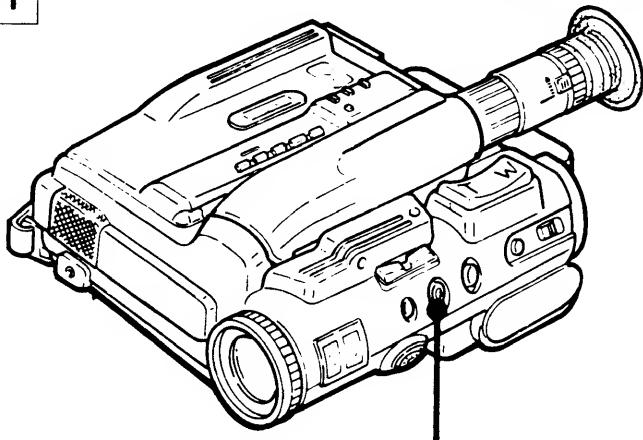
A



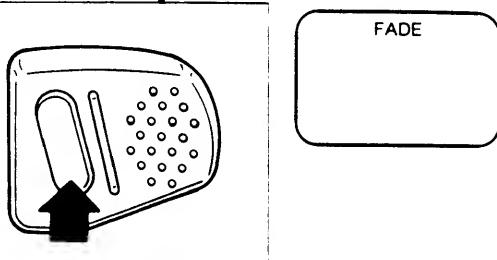
B



1



2



With Fade in/out recording by which picture and sound gradually appear/disappear in dark/normal picture, mysterious effect can be added to the picture.

A : FADE IN

B : FADE OUT

1

## FADE IN RECORDING

1. Press the FADE button, during the recording pause mode. The FADE indication will appear in the viewfinder.
2. Press the REC START/STOP button when you want to start fade-in recording. The FADE indication will disappear after 6 seconds, indicating return to the normal recording mode.

## FADE OUT RECORDING

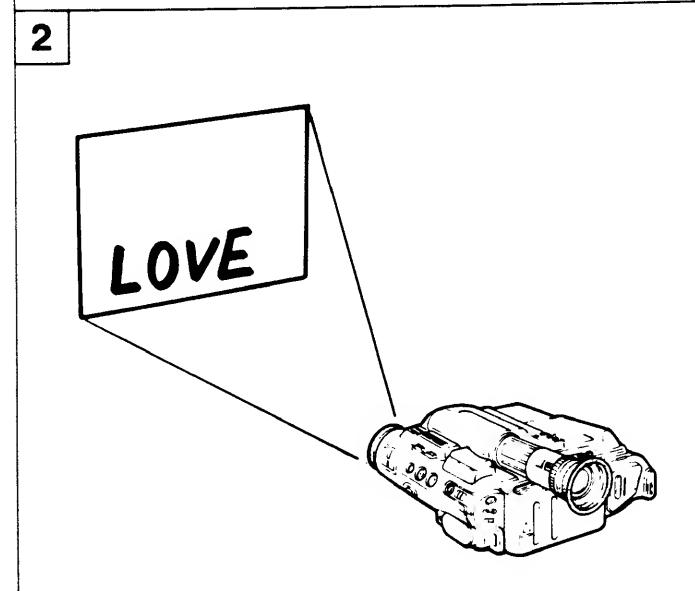
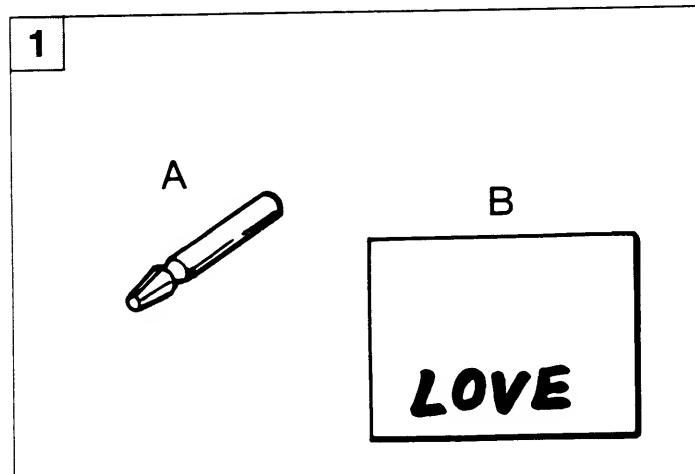
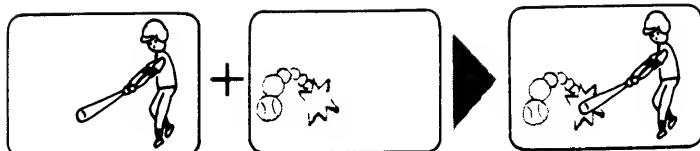
1. Press the FADE button, during the recording mode. The FADE indication will appear in the viewfinder.
2. To end the recording with fade effect, press REC START/STOP button. The FADE indication will disappear after 6 seconds, indicating pause in recording.

### Notes :

- In fade-in recording, actual recording starts following 1 second of dark screen after REC START/STOP button has been pressed.
- The fading function will not work on the title pictures.

## **TITLE INSERT** (Digital Memory Superimpose)

You can superimpose your hand-drawn title or an illustration over the picture while you record or play back. A title picture can be recorded in advance and stored in the digital memory. When you want to add the title while shooting or playing back. Just press the TITLE ON/OFF button to recall the stored title. The title can be superimposed in one of eight colours



**1**

Draw a title or illustration by using :

A : Black felt tip pen

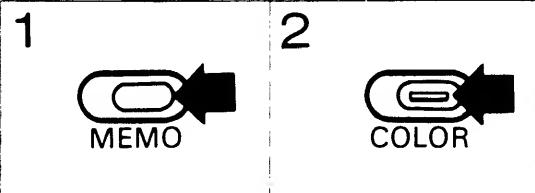
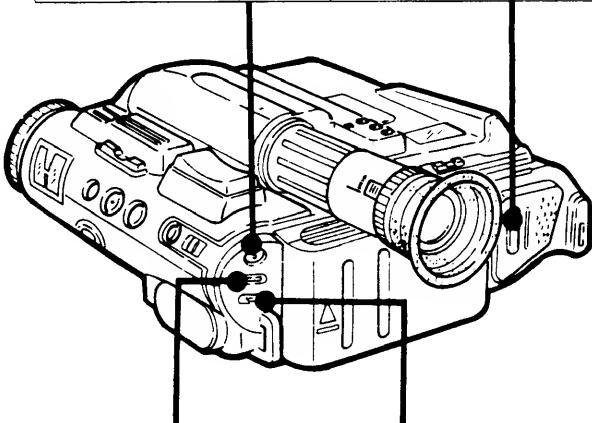
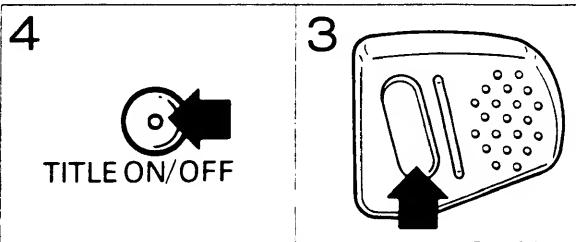
B : White card

- Make the design with clear outline, like the one drawn on white card with black felt tip pen.
- Draw the title clearly in bold strokes.

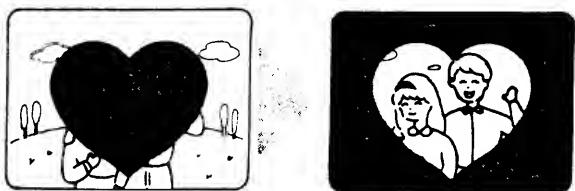
**2**

Record the title or illustration card in macro recording under the bright light.

1



2



1

1. Press the TITLE MEMO button.  
Memorized title picture will appear with color indication.  
Previously memorized picture will be erased each time a picture is memorized.
2. Press the TITLE COLOR button and select desired color.  
Color indication will change each time the button is pressed.  
WHT(White) → YEL(Yellow) → CYAN  
→ GRN (green) → VIO (violet) → RED  
→ BLUE → BLK(Black) → WHT
3. Start recording.
4. To remove the title, press the TITLE ON/OFF button.  
To put title again, press the same button.

#### MEMORIZED PICTURE CAN BE REVERSED (NEGATIVE)

2

Keep on pressing the TITLE COLOR button for about 2 seconds.

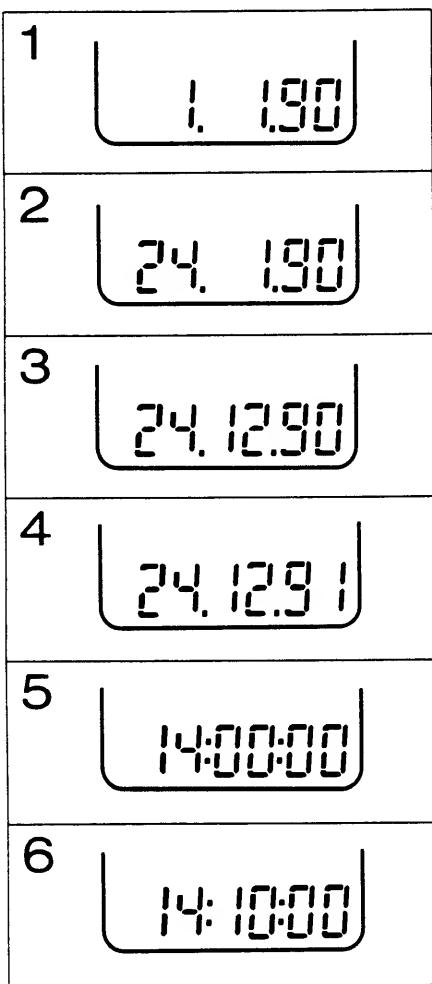
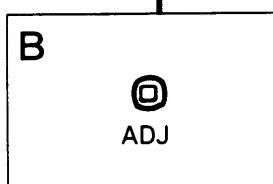
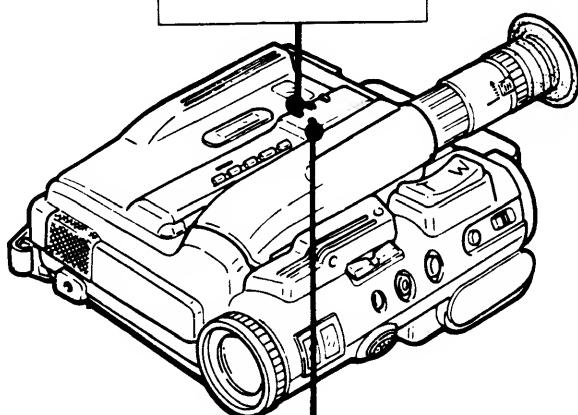
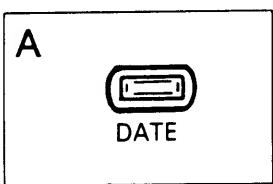
Do the same operation to return to the normal (positive) title.

- Suppose the title color is blue; it is reversed as the next color, black. Press the TITLE COLOR button to return to blue.

When editing on another video recorder, it is also possible to insert the title in the same manner as during recording by pressing TITLE ON/OFF button at any time.

#### Notes :

- The lithium battery keeps memorized picture even after power switch is turned off.
- Inserting a title in still playback mode may shear off the top portion of the title picture.
- The title picture can be more clearly memorized as the intensity of the light is increased.

**1**

The date/time of the recording can be imprinted in your recording.

## SETTING THE DATE/TIME

**1**

Example : 14 : 10 December 24, 1991

● The illustration to the left shows the digital indicator.

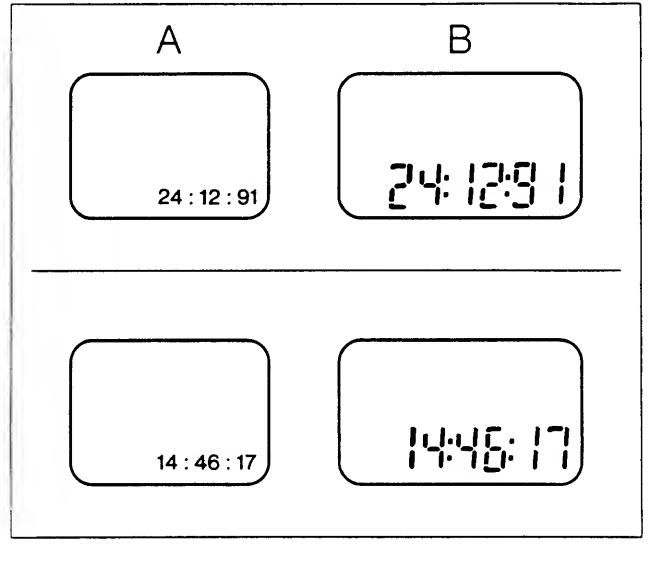
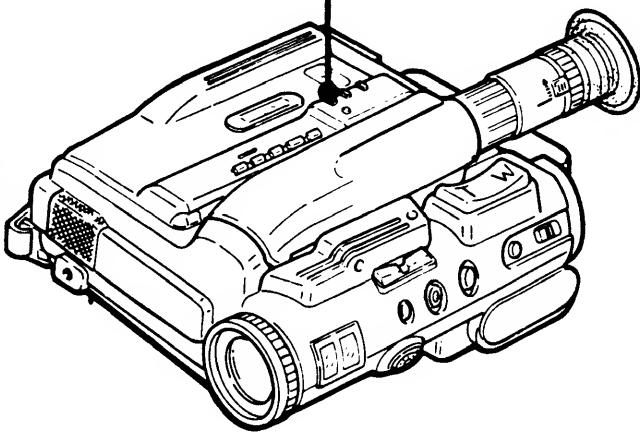
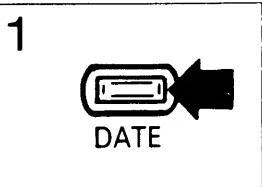
A : DATE button

B : ADJ button

1. Press and hold down the ADJ button for about one second.  
Count display ends and date display starts (initialized condition).
2. Press and hold down the DATE button until the day indication approaches the desired one.  
Release the button, then press it repeatedly to slowly change the day indication (e.g. set to "24").
3. Press and release the ADJ button, then press the DATE button to set the month indication (e.g. set to "12").
4. Press and release the ADJ button, then press the DATE button to set the year indication (e.g. set to "91").
5. Press and release the ADJ button, then press the DATE button to set the hour indication (e.g. set to "14").
6. Press and release the ADJ button, then press the DATE button to set the minutes indication (e.g. set to "10").
7. Press and release the ADJ button.  
Then, the DATE adjustment is complete and count display starts.

### Note :

● The date/time cannot be set during recording.

**DATE IMPRINT**

1. Press the DATE button.

The date appears in the viewfinder, and digital indicator displays the date instead of the count.

**TIME IMPRINT**

1. Press the DATE button once again.

The DATE indication changes to TIME indication. To stop the date/time imprint, press the DATE button again.

A : Viewfinder

B : Digital indicator

**Important Note :**

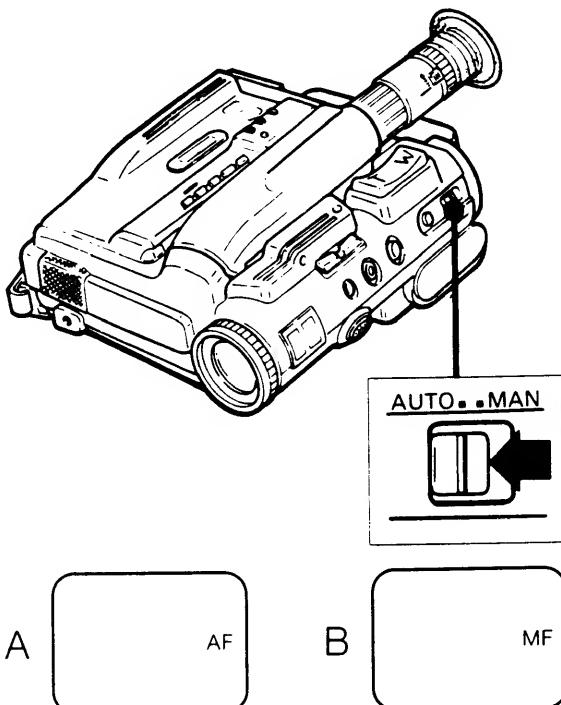
If "88 : 88" flashes when the DATE button is pressed, it is because either that date has been erased due to exhaustion of the lithium battery or that the date has not yet been set. Replace the lithium battery if this is the source of the problem, and set the date.

**Note :**

- During playback, no date/time indication appear in the viewfinder.

# FOCUSING

1



2

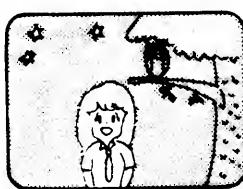
a)



b)



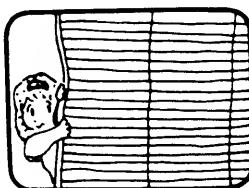
c)



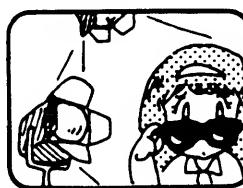
d)



e)



f)



## AUTO FOCUSING

1

The AUTO FOCUS is operated on the subject to shoot by setting the focus switch at "AUTO". During shooting, a focus indication showing the current focus condition appears in the viewfinder.

A : Auto  
B : Manual

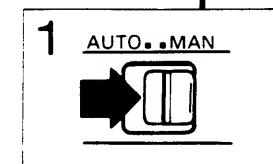
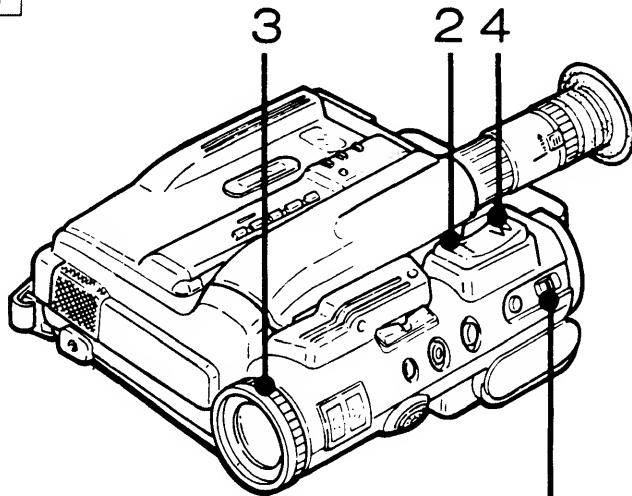
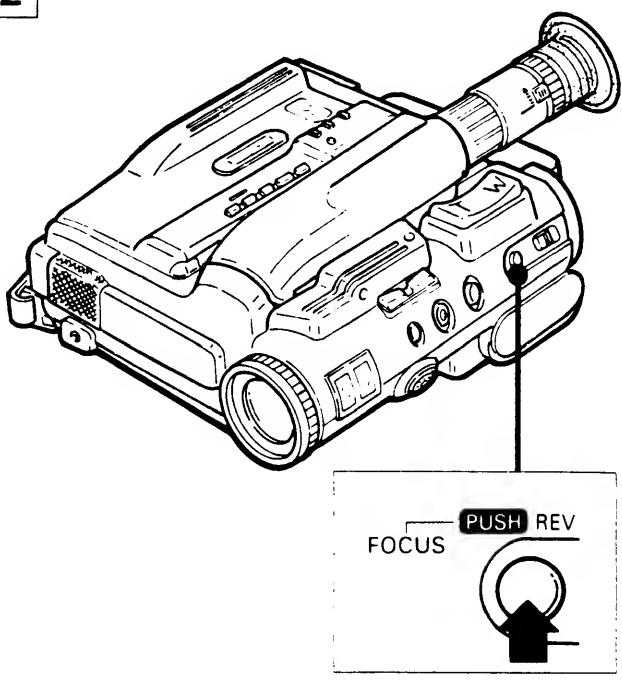
2

The auto-focus feature will not operate normally in the following circumstances. Set the FOCUS switch to MAN and adjust the focus manually.

- The camcorder cannot focus on a nearby subject and a distant subject at the same time.
- When shooting a subject through glass which has something visible on it (e.g. dirt, water drops, etc.), the auto-focus will focus on the objects on the glass, instead of the desired subject.
- When shooting a dark subject.
- When shooting subjects which have no contrast such as a white wall, sky, etc.
- When shooting a subject which has lateral stripes.
- When shooting an extremely bright subject.

### Notes :

- While the auto-focus feature is operating, do not try to turn or stop the focus ring.
- If a special filter is used (for vari-cross, mirages, etc.), the automatic focus feature may not function normally. Manual focusing is recommended.
- Focus manually when shooting fast-moving subjects or moving the camcorder (rapid panning, tilting, etc.), or when objects are passing between the camcorder and the subject being recorded.

**1****1****3****2****4****2**

## MANUAL FOCUSING

**1**

- 1 Set the FOCUS switch to MAN
- 2 Press the power zoom button for a close-up view of the subject.
- 3 Turn the focus ring until the subject's image is sharp and clear.
- 4 Press the power zoom button to obtain the desired image.

## FOCUS REVERSE

**2**

● When the FOCUS switch is set to AUTO :  
 Press and hold down the FOCUS REV button while panning. The focus will remain fixed in the MANUAL mode during the pan, producing a smooth picture as you move from one subject to another. Release the button to return to the AUTO focusing mode.

● When the Focus switch is set to MAN :  
 When changing subjects press and hold down the FOCUS REV button to automatically focus the image of the new subject. Release the button to return to the MANUAL focusing mode.

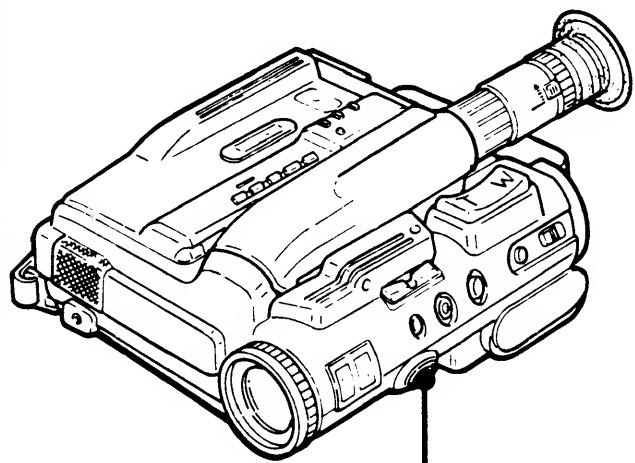
### Note :

- When using the manual focus for the zoom feature, adjust the focus at the telephoto (close-up) position, return to the wide-angle (distant) position, then zoom to the telephoto position while recording. The focus will be blurred at the telephoto position if it is set at the wide-angle position.

## AUTO IRIS

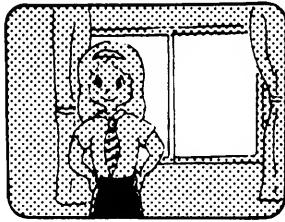
The FUZZY AUTO IRIS is operated for most illuminative conditions by setting the iris controlling volume at the center. For shooting to or against intense light, control the iris adjusting volume to introduce appropriate light to clear scene. Under usual light conditions, set the iris adjusting volume at the center.

A : Back light ... to OPEN side.  
B : High light ... to CLOSE side.



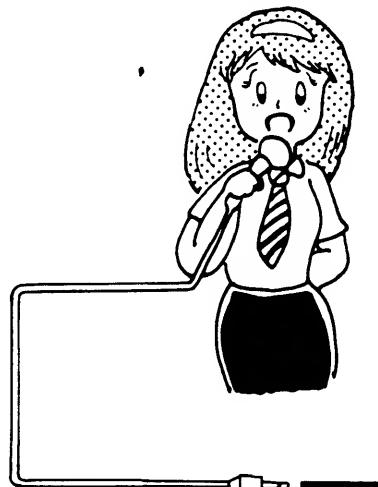
A

B

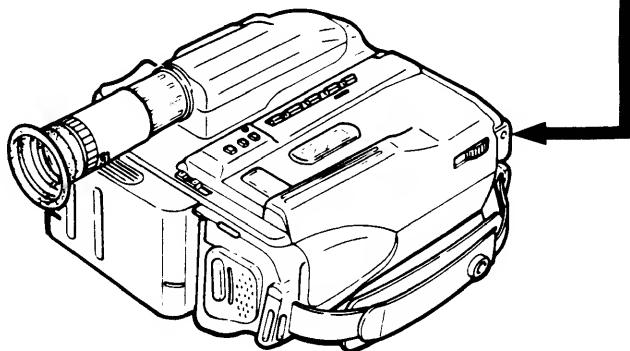


# MICROPHONE

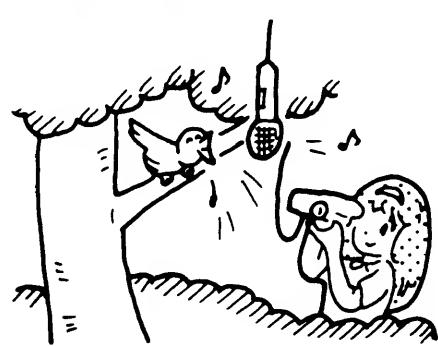
1



2



3



1

The built-in omnidirectional microphone is more or less evenly receptive to sound coming at it from all directions. This makes the recorded sound heard natural when playing back. A little distant sound can be effectively recorded by using an available microphone.

## RECORDING IN A HIGH WIND

2

A popping sound will be produced. Use a handkerchief and wrap an external microphone head with it to shield the wind.

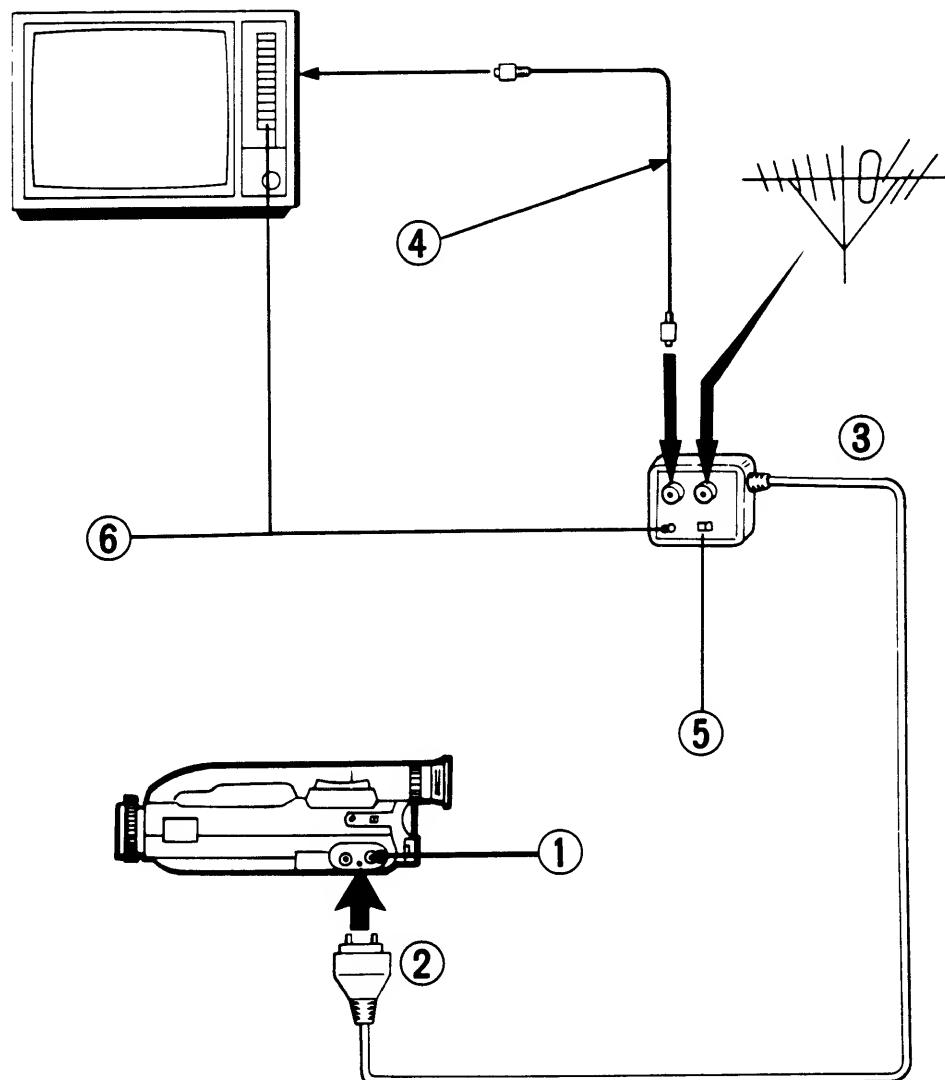
## RECORDING DISTANT OBJECT

3

Place an external microphone close to the subject to get a clear sound.

### Note :

- The built-in microphone will not function while an external microphone is connected.



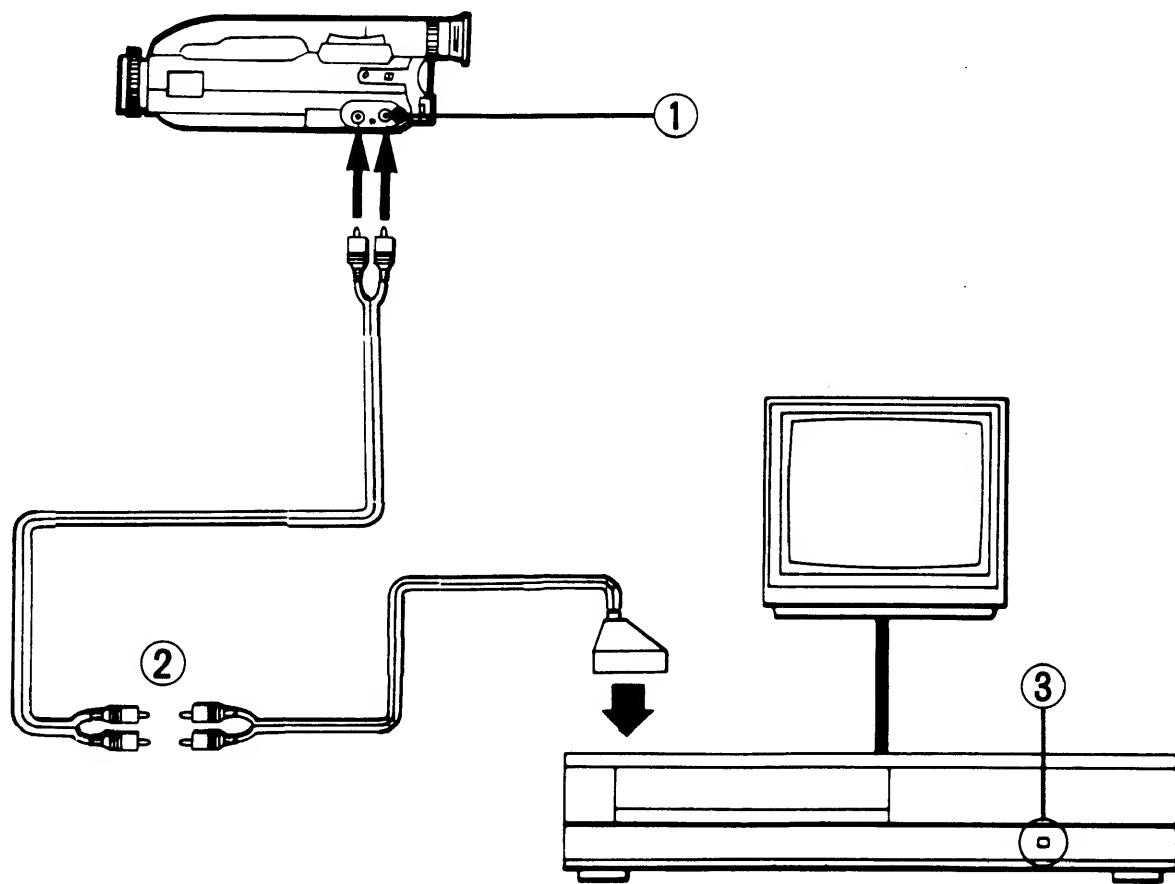
## CONNECTIONS

### FOR TV's WITHOUT AUDIO/VIDEO INPUT TERMINALS

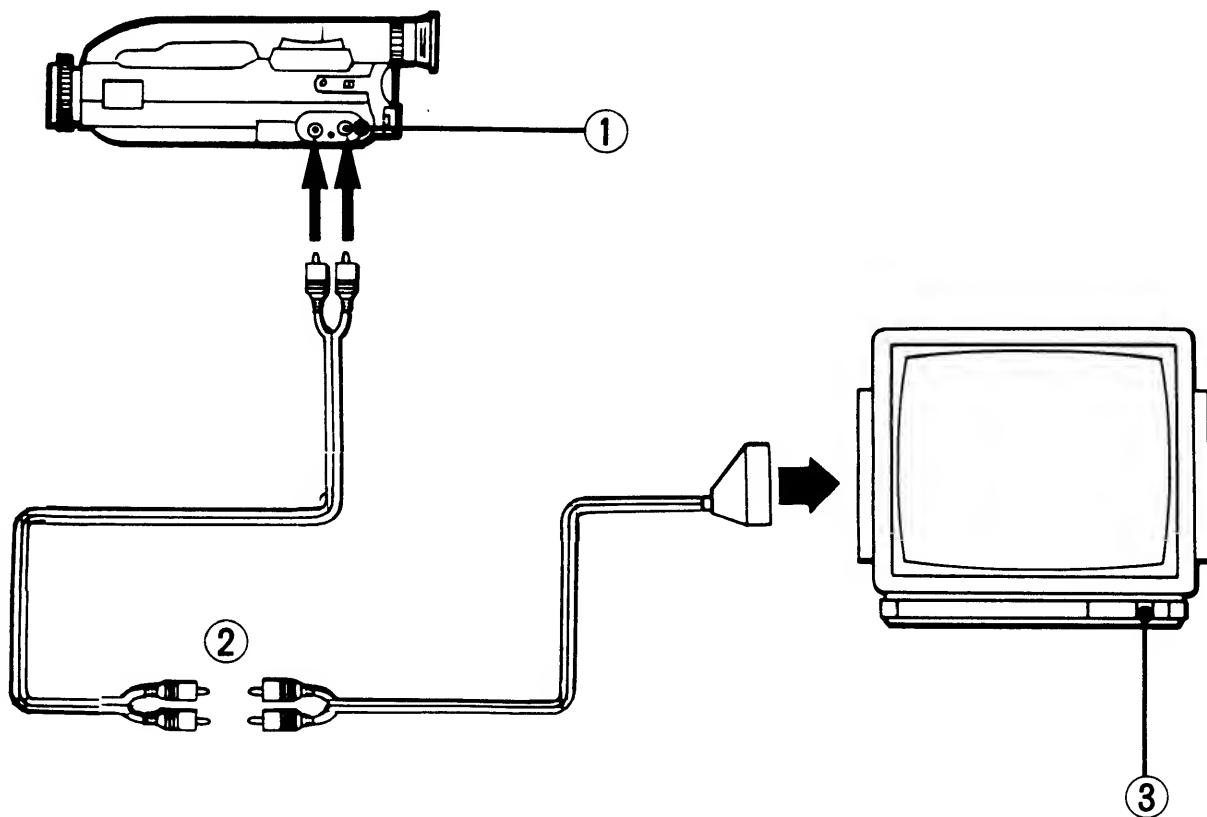
- ① Remove the AV jack cover.
- ② Insert the RF adaptor VRF-550 connecting terminal.
- ③ Remove the antenna connected to the TV unit, then connect it to the ANT IN terminal on RF adaptor.
- ④ Connect the ANT OUT terminal on RF adaptor to the TV unit through the coaxial cable.

- ⑤ Set the RF adaptor I/G selector to the proper position.
- ⑥ Adjust the RF CHANNEL screw of the RF adaptor and the TV's channel to the unused channel on which there are no TV broadcasts in your locality.

1



2



## FOR USING A VCR IN YOUR HOME

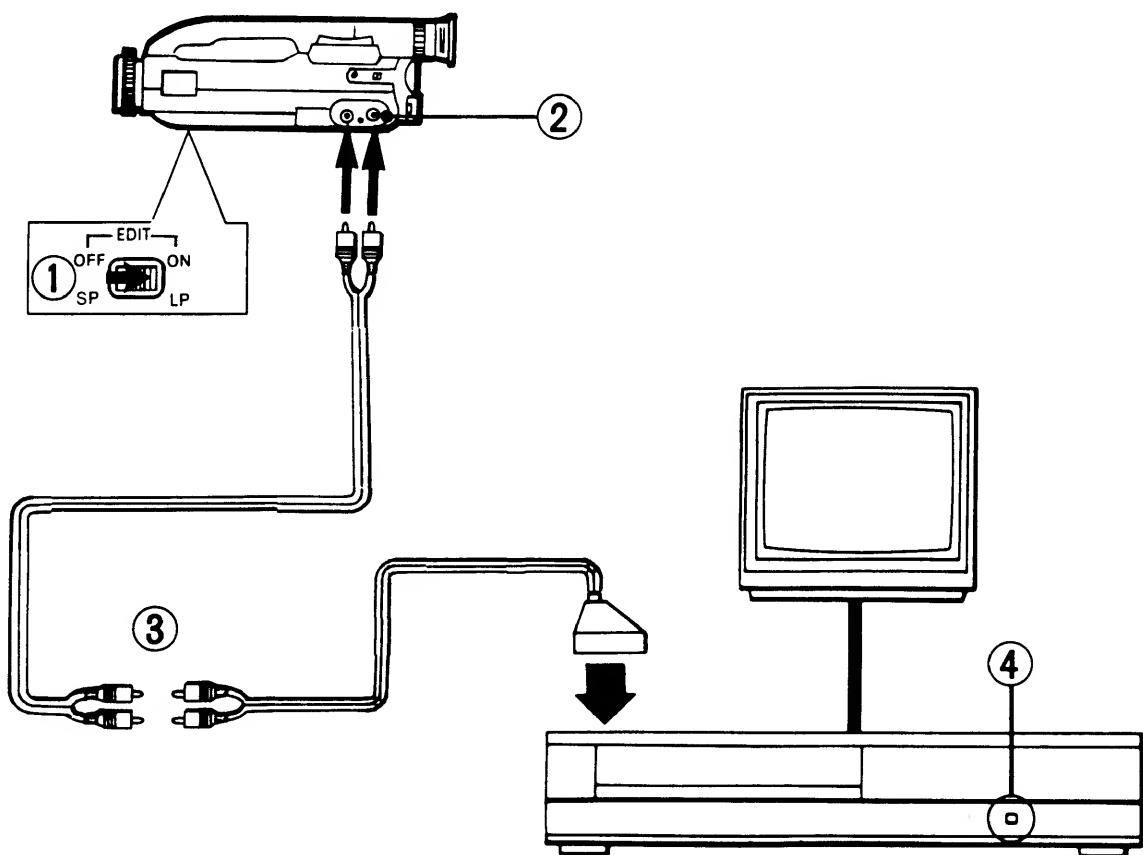
**1**

- ① Remove the AV jack cover.
- ② Connect the audio/video input terminals on the VCR to the camera with the AV scart adaptor VCE-212 (option) and connection cord.
- ③ Set the input select switch on the VCR to "external source".

## FOR TV's WITH AUDIO/VIDEO INPUT TERMINALS

**2**

- ① Remove the AV jack cover.
- ② Connect the audio/video input terminals on the TV unit to the camera with the AV scart adaptor VCE-212 (option) and connection cord.
- ③ Set the TV/VIDEO select switch on the TV unit to "VIDEO".

**1**

## TAPE COPY

### CONNECTION

**1**

- ① Set the REC MODE/EDIT switch of the unit to the ON position.  
(It will prevent the deterioration of picture quality.)
- ② Remove the AV jack cover.
- ③ Connect the unit to the audio/video input terminals of VCR with the AV scart adaptor VCE-212 (option) and connection cord.
- ④ Set the input selector switch of VCR to the external source position.

### OPERATION

1. Set the POWER switch of the unit to PLAYER position and then, insert the original tape to be copied.
2. Switch on VCR and insert a new tape for copying.
3. Set the VCR to recording pause mode.
4. Start playback on this unit.
5. Release pause button on the VCR; copying starts.
6. When tape copying is finished, set the REC MODE/EDIT switch to the OFF position.

#### Notes :

- The copying or dubbing of video tapes is permissible only insofar as copyright or other rights of third parties are not thereby infringed.
- The quality of pictures and sounds of the tape will be deteriorated after copying.

## 1. Do not expose this unit to high temperatures.

Excessive heat may damage the unit.

- Do not place this unit near a heat source (heaters, etc.).
- Do not leave this unit in a closed car on warm or hot days.

## 2. Abnormal operation.

If you notice anything unusual (smoke, strange noise or odour, etc.), switch the unit off immediately. Consult the dealer where the unit was purchased, or contact a Sanyo-authorized service station.

## 3. Moisture and foreign objects.

- Do not allow moisture (rain, steam, dew, salt water, etc.) to enter the unit.
- Do not allow any foreign objects (sand, metal objects, flammable articles, etc.) to enter the unit.
- Do not place anything except tape cassettes and the batteries in the unit.

## 4. Strong lights.

- Do not aim the camcorder directly at bright light sources.
- Do not place the unit near bright light sources, as heat damage may result.

## 5. Do not use this unit under the following conditions :

- In location with high humidity.
- In areas subject to high vibration.
- Where excessive dust or dirt is present.
- Near strong magnetic fields (e.g. near transmitting antennas, motors, fluorescent lights).

## 6. Do not use the unit for monitoring only.

If the unit is used to record the same subject for a long time, e.g. for special applications such as security monitoring, the picture quality will deteriorate.

## 7. Do not wrap the unit in a cloth etc.

If wrapped in a cloth during operation, the temperature inside the unit will rise excessively causing the unit to malfunction.

## Video heads

When the video heads have been used for a long time, the playback picture may become fuzzy, and eventually there may be no picture at all.

This is caused by dirty video heads, and is an indication that they should be cleaned.

To clean the heads, Sanyo recommends that you have them cleaned by Sanyo-authorized personnel.

- Note that the video heads can be damaged if a cleaning tape cassette is used incorrectly.

## Video heads wear in the same way as a turntable stylus.

If the picture is not clear even though the heads have been cleaned, it is possible that the heads themselves are worn.

If so, they must be replaced.

For detailed information and assistance, please consult your dealer.

## Inspect at 1000 hour intervals

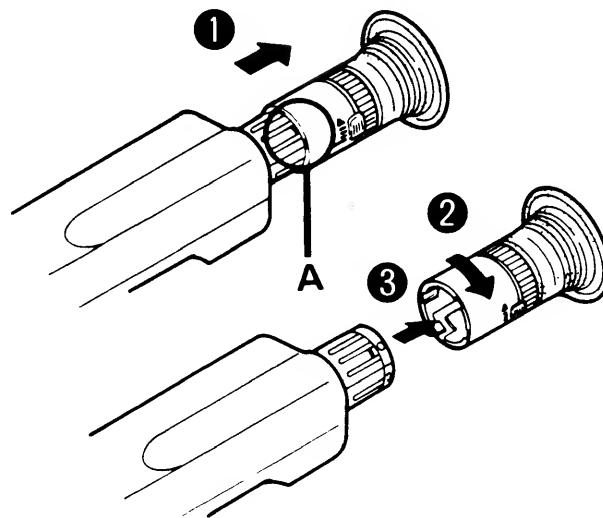
This unit requires an extremely high degree of precision to record images from the video camera onto magnetic tape and then to correctly reproduce those images. In particular, the video heads and mechanical parts which handle the tape are especially liable to becoming dirty and worn after long use.

For continued trouble-free operation, Sanyo recommends that the unit be inspected (including cleaning, lubrication and possible replacement of some parts) after every 1000 hours of use (approximately).

For detailed information and assistance, please consult your dealer.

## Viewfinder

- The ocular part of the viewfinder is removable. When dust is settled inside, clear it away.
  - 1 Pull the ocular part and set it to the mark. A : Set it to the mark
  - 2 Turn it in the arrowed direction.
  - 3 Remove the ocular part wholly.Reset can be made in the reverse procedure.



## USE IN OTHER COUNTRIES

All you need for recording in a foreign country is a charged battery pack (s) and cassette (s). If you want to play back the tape in that country, you will have to use a TV which uses the PAL color system and which has audio/video input terminals.

### Main countries using the NTSC system

Canada, Japan, Korea, Mexico, the Philippines, Taiwan, U.S.A.

### Main countries using the PAL system :

England, Italy, Austria, Australia, West Germany, Holland, Kuwait, Singapore, Switzerland, Sweden, Spain, Thailand, People's Republic of China, Denmark, New Zealand, Norway, Belgium, Portugal, Hong Kong

### Main countries using the SECAM system :

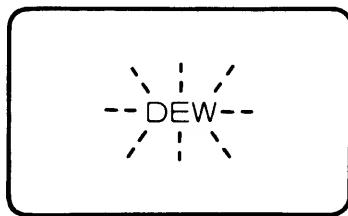
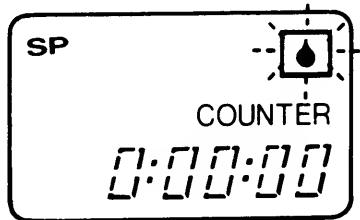
Iran, Iraq, USSR, Hungary, France, Bulgaria, Poland, Monaco, Luxemburg

## TROUBLESHOOTING

First check the items below. If operation still seems abnormal, consult the dealer where the unit was purchased for assistance.

Symptom	Probable cause
No power.	<ul style="list-style-type: none"><li>• Battery pack is exhausted.</li><li>• AC adaptor is turned off.</li></ul>
Nothing happens even with batteries attached.	<ul style="list-style-type: none"><li>• Moisture exists.</li></ul>
Power is suddenly turned off during use.	<ul style="list-style-type: none"><li>• Battery pack is exhausted.</li><li>• Stop mode or pause mode is continued for 5 minutes or longer.</li></ul>
Can't record.	<ul style="list-style-type: none"><li>• No cassette.</li><li>• Cassette is set for erase prevention.</li><li>• Tape has been wound to its end.</li></ul>
Can't focus.	<ul style="list-style-type: none"><li>• The subject is difficult to focus.</li><li>• Distance to subject is less than 1.2 m.</li></ul>
No picture on the TV	<ul style="list-style-type: none"><li>• Wrong connection.</li></ul>
Playback picture flickers or blurs.	<ul style="list-style-type: none"><li>• Video heads are dirty.</li></ul>

If a malfunction should unexpectedly occur while in another country, contact the dealer where the unit was purchased.

**1****2****1**

The same moisture which forms on windows on cold days can also appear within this unit under certain conditions. This is called condensation, or "DEW". Special care must be taken if this occurs.

## CONDENSATION ("DEW") INDICATION

**2**

Condensation inside the unit can, if the tape moves, damage the tape as well as internal parts of the camcorder. To prevent this, this unit includes a special safety device.

When condensation occurs,  symbol (flashing) and the DEW symbol (flashing) will appear in the digital indicator and in the viewfinder, respectively. The unit will not accept commands even if the power is ON, for any operation except cassette ejection.

The cassette holder won't allow cassette insertion.

### If condensation occurs

The DEW symbol will disappear when the moisture is no longer present.

The time required will depend on the surrounding temperature.

### Note :

- It sometimes happens that the DEW symbol doesn't illuminate immediately, even though internal condensation is present. Do not use the unit for a short time if it has been subjected to a sudden change in temperature.

### Moisture on a tape

Moisture can condense on a tape when the tape is moved from a cold place to a warm place. If a cassette with this problem is inserted, the CASSETTE indication will flash when one of the control buttons (PLAY button, etc.) is pressed, and only the EJECT button will function. Note that the DEW symbol will not appear in this instance.

Take out the cassette and let it dry naturally.

# SPECIFICATIONS

<b>Television system</b>	PAL, CCIR
<b>Video recording system</b>	Rotating 4-head helical-scan FM, color under system
<b>Audio recording system</b>	Rotating head FM system
<b>Cassette type</b>	8 mm video tape cassette
<b>Tape speed</b>	SP : 20.051 mm/sec. LP : 10.025 mm/sec.
<b>Recording/playback time</b>	180 minutes (P5-90 cassette)
<b>Fast forward/rewind time</b>	Approx. 8 minutes (P5-90 cassette)
<b>Pickup element</b>	CCD solid-state type
<b>Viewfinder</b>	Electronic (0.7 inch type, black and white)
<b>Lens</b>	Electro-powered-6X zoom lens $f = 11\text{mm} \sim 66\text{mm}$ F2 Close-up function (15mm $\sim$ 1.2m) Automatic focus Filter diameter 37mm
<b>White balance adjustment</b>	Automatic
<b>Minimum subject illumination</b>	4 lux
<b>Subject illumination range</b>	4 lux $\sim$ 100,000 lux
<b>Power supply voltage</b>	Battery holder input 6V / 7.5V / 9V
<b>Power consumption</b>	5.9 W during camera recording
<b>Operation temperature range</b>	0°C $\sim$ 40°C (32°F $\sim$ 104°F)
<b>Storage temperature range</b>	-20°C $\sim$ +60°C (-4°F $\sim$ 140°F)
<b>External dimensions (W <math>\times</math> H <math>\times</math> D)</b>	163mm $\times$ 78mm $\times$ 184mm
<b>Weight (approximately) (not including battery pack and cassette)</b>	810 g
<b>Microphone</b>	Electret condenser type (Omnidirectional)
<b>AUDIO/VIDEO terminal</b>	Video output 1 Vp-p, 75Ω unbalanced, negative sync Audio output -6dBs, 2.2kΩ or less
<b>Microphone jack</b>	Mini jack, -66dBs For low-impedance microphone
<b>Earphone jack</b>	Mini jack, for 8Ω earphone

- Because its products are subject to continuous improvement, Sanyo reserves the right to modify product designs and specifications without notice and without incurring any obligation.



## WARRANTY TO CUSTOMER

Sanyo Marubeni (UK) Ltd. (the Company) warrants to the initial retail purchaser that if this equipment is or becomes defective and that, in the opinion of the Company, the defect is due to faulty material or workmanship the Company will, for a period of 12 calendar months from the date of sale to the original purchaser repair or replace, at its sole option, free of charge, any such defective component part of the equipment, always provided that:-

1. The equipment has at all times been used in accordance with the operating instructions issued by the Company, and has not been connected to an electrical mains supply for which it has not been adjusted.
2. Accidental damage, or damage caused by negligence or misuse by the user, including leakage from exhausted batteries, is specifically excluded.
3. Unauthorised repairs, or any modification to the equipment which has not been expressly approved by the Company, shall render this warranty null and void.
4. Failure due to fair wear and tear of any item, such as batteries, record playing styli, and tape recording, playback and erase heads is specifically excluded.

This warranty is not transferable and is only applicable within the United Kingdom (and the Republic of Ireland).

Nothing in this express warranty affects the statutory rights available to the purchaser of this equipment.

Note: This warranty supersedes any other form of guarantee that may inadvertently have been enclosed with or attached to the product. (August 1978).

## Dear Customer

Thank you for buying Sanyo. This equipment should give you many years of pleasure and faithful service but in the event that a fault occurs, the following notes for your guidance may be helpful:-

1. PLEASE RETAIN YOUR PURCHASE RECEIPT WHICH WILL BE REQUIRED FOR SERVICE DURING WARRANTY.
2. If your Sanyo equipment proves faulty during the period of guarantee, take it or send it back to the dealer who originally supplied it together with this guarantee and the proof of purchase. We have made arrangements with our approved dealers under which they will carry out in guarantee service repairs on our behalf. In this way, we hope to reduce to a minimum the amount of time you will be without your equipment.
3. If for some reason it is impossible to return the equipment to the original supplier, please contact our Service Department at the address below for further advice.
4. Should the equipment require servicing after the expiry of the guarantee period, take or send it to the original supplier or any other Sanyo dealer. He will be pleased to give you a quotation for the repair. If you are in any doubt about what to do, write to us at the address below or telephone:

Service Departments,  
Sanyo Marubeni (UK) Limited,  
Sanyo House  
Otterspool way, Watford,  
Hertfordshire WD2 8JX  
Tel: Watford 46363

**SANYO**